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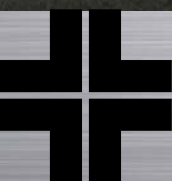
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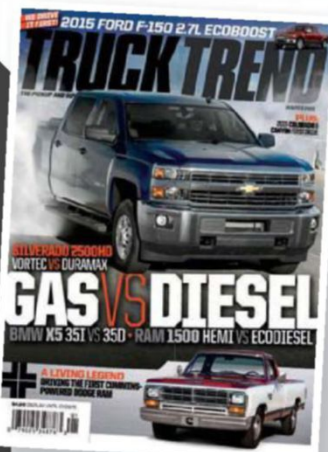
2007-2013 GM 2500/3500HD



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ON THE COVER

This month, we're digging deep into one of the hottest debates in the automotive industry right now. As diesel engine options continue to increase, we attempt to sort out which engine, gasoline or diesel, is best for each application. While heavy-duty diesels are known for laying down huge torque numbers, this '15 Chevy 2500HD powered by a 6.0L gasoline V-8 had no issue turning its rear tires in to smoke. Photo: Robert Guio



Why I Love Diesel

If you've been reading this magazine for the past few months, you might know a bit about my history before *Truck Trend*. In a past life, I worked for our sister publication, *Diesel Power*, as a feature editor. We dove very deep into the world of diesel performance, exploring ultra-high-horsepower builds, drag racing, and sled pulling. It really is a fun scene, filled with great

camaraderie and friendly rivalries. However, during my time covering 1,000hp ¾-ton trucks, an interesting thing was happening in the background: light-duty diesels began infiltrating dealer lots in vast numbers.

We have entered a time now where the new, and used, truck and SUV buyer is faced with a question when looking to purchase a vehicle that, until now, hasn't been

much of an issue: gas or diesel? While the American and Japanese auto manufacturers have been slow on the diesel uptake, nearly all European brands offer small-displacement diesel-powered cars and SUVs. Ram and Jeep are leading the charge for the U.S. brands with the Ram 1500 and Jeep Grand Cherokee EcoDiesel models, and Nissan is soon to join the fight with a Cummins-powered Titan. On the fullsize utility van front, Ram offers a 3.0L EcoDiesel in the ProMaster, Ford has a 3.2L PowerStroke diesel engine in the Transit, and Mercedes offers up the Sprinter with both a four and six-cylinder mills. This is just the beginning; we're poised to see these offerings potentially double in the coming years.

Later in this issue, we take a look at the merits of both gasoline and diesel fuel and even go as far as to compare SUV, ½-ton, and ¾-ton offerings available with both types of engine. Hopefully, we'll shed some light on the

subject, helping you to make the most informed buying decision possible, doing so with as little bias as we can. With that said, and in the spirit of full disclosure, I love diesel.

Diesel as a fuel is great. When compared side-by-side with gasoline, it's less volatile, which makes storing and transporting it safer; diesel has a less repulsive smell, to me at least; it's a more energy-dense fuel, providing the ability for improved fuel economy and power over gasoline; and at times (and depending on what state you live in—sorry, California), is less expensive than regular unleaded. Even beyond that, there's just something primal about a good compression-ignition engine that makes you feel manlier—sorry, ladies.

The '80s can be considered the beginning of the modern diesel era in the U.S. Sure, they were clattery, smoky, and didn't make much power, but advancements such as direct-injection and turbocharging would lay the ground work for the much more powerful and refined engines that we find in vehicles now. Today's diesels are so incredibly smooth and quiet that the only time you'll know it's not a gas engine is at the pump. It's truly impressive how far technology has come in effectively just 30 years.

For me, diesels of the '80s are still cool. In fact, I own one of the more rare models, an '85 Ford Ranger equipped with the factory 2.3L four-cylinder turbodiesel engine. After driving around in all the new oil-burners on the market, it's a bit refreshing for this truck-nut to jump in the old Ranger and take a shaky, smoky trip around the block. Makes me feel whole inside.

I love diesel. It doesn't matter if it's an old diesel truck or brand-new SUV. If you ever have the opportunity to test drive one, give it a shot. I promise you won't be disappointed. **TT**

This is my toy, an '85 Ford Ranger with the factory 2.3L turbodiesel engine. When new, it made an astonishing 86 hp and 134 lb-ft of torque. Diesel engines sure have come a long way since then.





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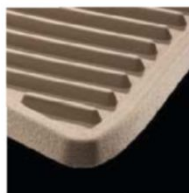


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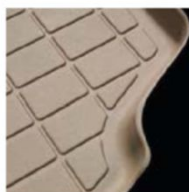
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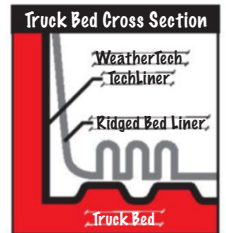
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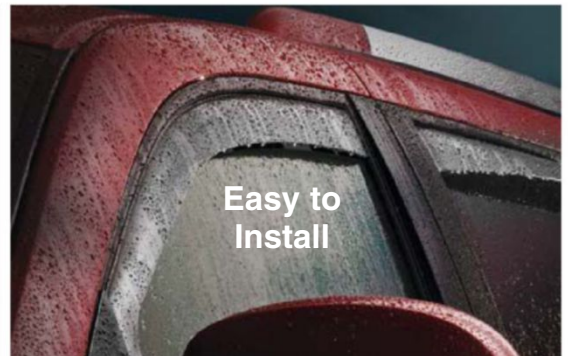
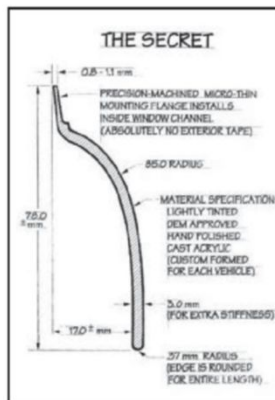
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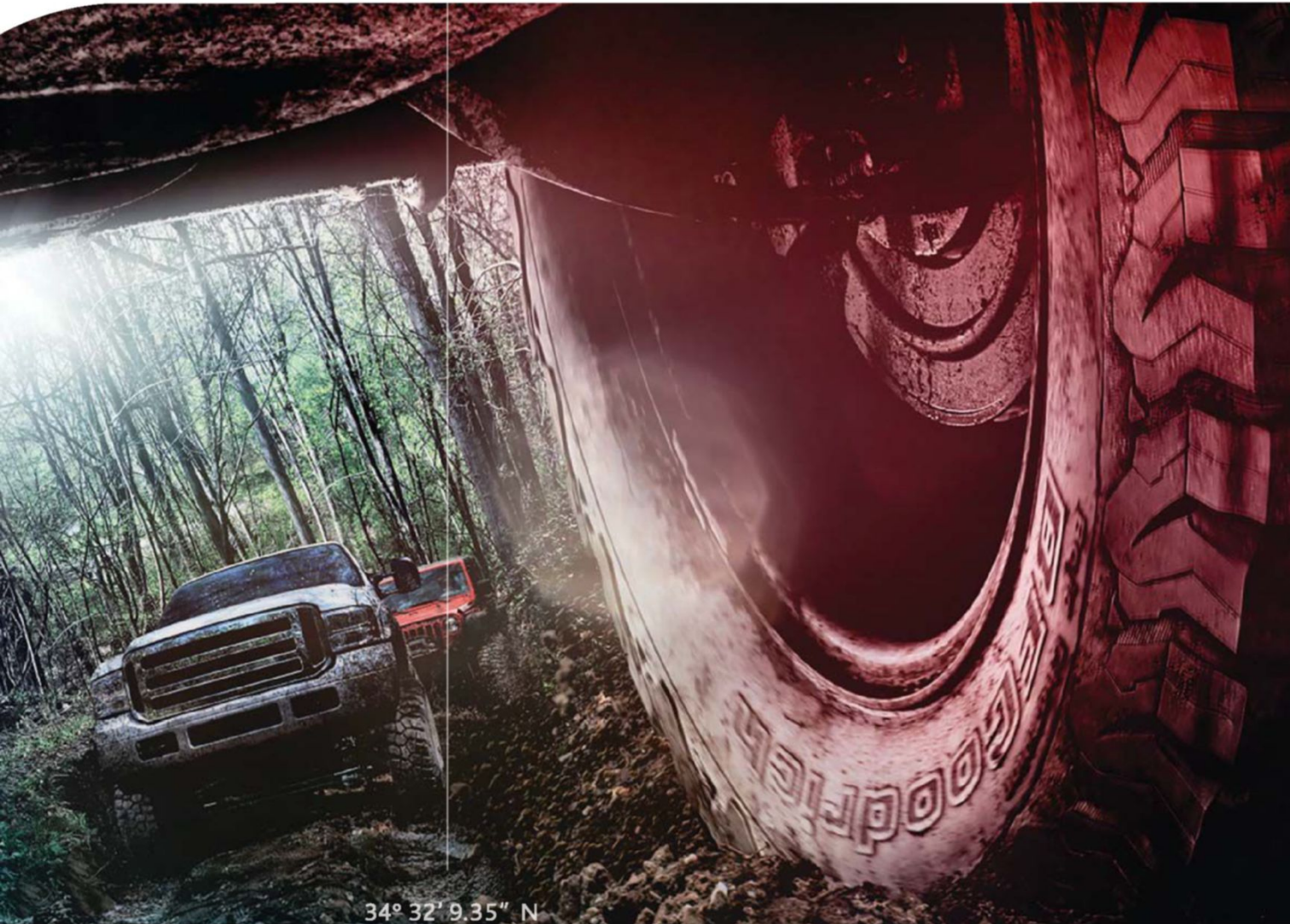
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EMISSIONS CHECK

CAR SALESMAN

Reading The Driver's Seat in your Sept./Oct. '14 issue and the balance of the magazine gave me incentive to drive and subsequently purchase a '14 Chevrolet Tahoe for my wife. I had done some research and decided to purchase either a Honda Ridgeline or Toyota Highlander. That is until the local dealer let my wife and son drive the Tahoe home and keep it overnight.

I drove it the next day on both I-95 and on hilly and winding country roads. I was shocked that the Tahoe was so quiet and comfortable driving that I could hear my son sitting in the third-row seat talking. The Tahoe drives well with accurate steering. I was surprised how fast and straight the brakes stop in an emergency and how it makes U-turns that my Toyota Tundra can't! So, we drove it back the next afternoon and negotiated a great price to purchase it from the dealer.

Victor Mistuno
Linden, North Carolina

TOW RIG BLUES

I have a small dilemma. I am semi-retired and looking at upgrading my travel trailer in order to spend more time on the road exploring new places. I'm looking at trailers that are in the 15,000-pound range and need to upgrade my tow vehicle.

I want the best bang for my buck and would be able to bring about \$60,000 toward the tow vehicle. I hope you can steer me in the correct direction.

Brad Algar
Buckhorn, Ontario, Canada

As cliché as it might sound, you really can't go wrong choosing any of the current ¾ or

We've strapped all three of the current heavy-duty diesel offerings to the chassis dyno and can say with certainty that GM is not too far behind the rest of the pack when the rubber meets the road.

1-ton trucks on the market. You'll want a diesel engine, since 15,000 pounds is on the upper end of what a gasoline-powered truck can tow. Assuming it's a fifth-wheel trailer, a ¾-ton will get the job done, but if you think you might go larger, it's worth looking at 1-tons. Beyond that, it's going to come down to personal preference. Be sure to consider unloaded ride quality, available features, recommended service intervals, and warranty length. Sit in and drive all of them before making your decision. We've driven '15-model-year offerings from all three manufactures and can attest to the fact that it's going to be a difficult decision.

LOWER POWER STROKE?

I noticed in your Sept./Oct. '14 issue that Ford puts lower-powered diesel engines in the F-650 and F-750 trucks. Do you know if they will do this in the ¾-ton truck so we could get better fuel mileage? Most of us don't need 400 hp and 800 lb-ft of torque.

Johnny Shelton
Morganton, North Carolina

We certainly wouldn't hold our breath for that one. Besides being a major marketing

We recently had the opportunity to tow a trailer roughly equivalent to this one with the '15 Ford F-350 and were not the least bit disappointed.



bonus, the high power figures actually help the heavy ¾ and 1-ton trucks achieve the fuel economy that they do. Less power would mean the engine actually has to do more work moving the truck down the road, resulting in less economy. We could talk for days on this subject, but that's the simplest explanation.

DIESEL TORQUE WARS

My question is related to the heavy-duty line of pickup trucks. For the '15 model year, Ford's Power Stroke is rated at 440 hp and 860 lb-ft, Ram's Cummins is at 385 hp and 850 lb-ft, and GM is still at 397 hp and 765 lb-ft of torque with their Duramax. Did GM not anticipate this one-upmanship? It is almost as if they are satisfied with playing catch-up rather than shooting to be the market leader.

Paul Moore
Forest Hill, Maryland

*The simple truth is this: GM has done anything but rest on its laurels. What you're noticing is two-fold. First, and probably simplest, is that it would appear that GM is happy with their current place in the market and not really interested in engaging in the horsepower war at this moment. Not being privy to detailed sales numbers and internal analytics, there's no way for us on the outside to assume they aren't right on track. And secondly, GM appears to have gotten onto a track where the truck bodies are updated before powertrain. Since we've just seen a major body refresh for '15, we're assuming that an equally major powertrain update will be seen soon; we really wouldn't be surprised if Duramax regains the crown when that happens. **TT***

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JANUARY/FEBRUARY 2015

NEWS + RUMORS + TRENDS

COMPILED BY EDWARD A. SANCHEZ



While some are questioning General Motors re-entry into the midsize truck market, currently dominated by the Toyota Tacoma and Nissan Frontier, initial indications show the move may be a smart one, with Chevrolet dealers requesting 28,000 units in August, the first full month the order bank was open. Orders for the GMC Canyon were 14,000 for the same period. For perspective, average monthly sales for the Tacoma are around 14,000 units and 6,000 units for the Frontier. The '15 Colorado and Canyon will be in dealerships later this fall.

An additional selling point for the new trucks will be their fuel economy, with the 2WD V-6 model rated at 18 city/26 highway, the 4x4 V-6 at 17/24. The Tacoma is rated at 17/21 for the 2WD V-6 model, and 16/21 for the 4x4 V-6. The Nissan Frontier is rated at 16/22 for the 2WD V-6 and 15/21 for the 4WD V-6. The inline-four base engine is rated at 20/27 for 2WD and 19/25 for 4WD. Fuel economy for the 2.8L Duramax I-4 diesel has not yet been announced.



2015 Colorado Pre-Orders Reportedly "Off-the-Charts"

SPECIAL ORDERS OF 2015 FORD F-150 MAY NOT ARRIVE UNTIL FEBRUARY

BUYERS THAT put in a special order for the '15 F-150 may have to wait until after the first of the year to take delivery of their new truck. *Automotive News* is reporting that Ford sent a letter out to its dealers explaining the delivery schedule of the new truck. Dealers have been promised that they will receive a limited stock of the new truck before the end of 2014 but that any customer special orders may not arrive in dealers until February.

Production of the current-generation F-150 will continue into '15 as the Kansas City plant prepares for production of the new truck. The first units of the aluminum-bodied '15 model will come from Ford's Dearborn truck plant. Many dealers have ordered extra stock of the '14 model in anticipation of the late-fall 2014 deliveries of the new model.



'15 Chevrolet Colorado V-6



Report: Ram Sticking with Steel for Foreseeable Future

ACCORDING TO a Reuters report, Chrysler will stick with steel's proven performance and reputation for its Ram fullsize trucks until at least the turn of the next decade. The report cites concerns among some of Ram's commercial customers about the long-term durability of aluminum.

The next refresh for the line is expected in '17 and could bring further improvements in fuel economy and features. Ram is the current fullsize truck fuel economy leader with its base 3.6L Pentastar V-6 and EcoDiesel powerplants, both paired to an eight-speed transmission.

The Ram trucks are not expected to get a full redesign until '20 or later, at which point they could adopt aluminum bodies, but Chrysler representatives remained mum on future plans for the trucks.



CAUGHT! 2016 FORD F-150 RAPTOR MULE



2015 RANGE ROVER SPORT SVR FASTEST SUV ON NÜRBURGRING—FOR NOW

THE '15 Range Rover Sport SVR can claim the fastest Nürburgring lap time for an SUV, beating the next-fastest Porsche Macan Turbo by one second with an 8-minute, 14-second time.

The secret to the SVR's stout performance credentials is Jaguar Land Rover's high-output 5.0L supercharged V-8, shared with the Jaguar XJ-R and XF-R and F-Type R, producing 550 hp and 502 lb-ft of torque. Mated to a ZF 8HP70 eight-speed automatic, the power hits the pavement through 275/45R21 Continental Cross Contact tires at

all four corners. The claimed 0-60 time is 4.5 seconds with a 162-mph top speed.

Despite all its high-performance, track-tuned hardware, the Range Rover Sport SVR has lost none of the off-road capability of the standard Sport, with a 2.93:1 low-range, adjustable-height suspension, optional locking rear differential, and a water fording depth of up to 33.5 inches.

Of course, this level of performance rarely comes cheap, and with a starting price of \$111,400 including \$925 for destination, neither does the SVR.



BACK IN MAY, we got spy photos of what's believed to be a mule of the '16 Ford F-150 Raptor testing in the Southwestern desert. This time, the spy shooter was able to get closer. Close enough to get a listen to the exhaust note, which according to our source, sounded a lot like Ford's EcoBoost V-6. With the discontinuation of the 6.2L V-8 in the '15 F-150, the 3.5 EcoBoost makes for a logical replacement.

The nose clip and bed uses sheetmetal from the outgoing model, but the difference in width accentuates the fact that this is in fact the next-generation aluminum-bodied truck. The shocks are a different color than the blue-and-chrome color of the current Raptor's Fox Racing shocks, suggesting a possible change in shock vendors. However, they could also be unmarked next-generation Fox shocks undergoing testing. It's unknown when the next-generation Raptor is going to be unveiled, but it could be as soon as the 2014 Los Angeles Auto Show, or more likely, the 2015 Detroit Auto Show.



TRENDING NOW

TO GIVE SIERRA fans another personalization option, GMC is introducing the '15 GMC Sierra Carbon Edition, which debuts this fall. The package will be available as the Carbon 22 package, with 22-inch black-accent alloy wheels, and the Carbon 20 edition, which gets 20-inch wheels. There's also a "standard" carbon edition that gets the graphics package and most of the other equipment, minus the big rollers.

Aside from the obvious hood and tailgate decals, the Carbon Edition models feature a black painted grille, body-color door handles and mirror caps, tubular side steps, fog lights, remote start, a 110-volt power outlet, and dual-zone climate control.

The packages are available in Crew-Cab and double-cab models. All models are available with two or four-wheel drive and come standard with the 4.3L EcoTec3 V-6 engine, with the 5.3L

V-8 optional. Starting price for the Carbon Edition is \$33,075, with the Carbon 20 Edition starting at \$38,275 and the Carbon 22 starting at \$42,270. Dealer orders for the double-cab models are open now, with orders for the Crew-Cab models starting in early October.

2015 GMC SIERRA GETS CARBON EDITION PACKAGE



2015 Ford F-150, TRD Pro, Chevy Colorado/GMC Canyon Prices Announced

THE NEW '15 model trucks are starting to roll into showrooms, and base prices have been announced for some highly anticipated models, including the '15 Ford F-150. Ford's aluminum-bodied 1/2-ton will start at \$26,615 for the base XL regular cab. Those buyers planning on piling on the goodies should be prepared to shell out nearly twice as much, with the Platinum model going for \$52,155. The 2.7L EcoBoost V-6 is a stand-alone option on XL and XLT models for \$495, with the 3.5L optional for \$1995 over the base V-6. Between the plumber-special XL and



\$31,925

top-trim Platinum, the XLT model starts at \$31,925, the Lariat starts at \$39,730, and the King Ranch goes for \$49,690.

Starting prices for the '15 Chevrolet Colorado and GMC Canyon start at \$20,995 and \$21,800, respectively. A Colorado Z71 Crew Cab 4x4 starts at \$34,990, and the Canyon SLT Crew Cab 4x4 starts at \$37,875.

Finally, prices for the new line of Toyota TRD Pro models have been announced, with the Tacoma starting at \$36,410, the 4Runner at \$41,995, and the Tundra starting at \$42,385.

\$36,410



\$37,875





Detroit Three Come to Consensus on J2807, Battle on Torque

AFTER A series of reports about misleading practices among the domestic automakers about reporting maximum payload and towing capacities, which included removing the rear bumper and tailgate, among other items, General Motors said it would report capacities based on standard specification.

On the HD front, Ford reiterated its 31,200-pound towing claim for the '15 F-450 as being J2807-compliant, after Ram reported the 30,000-pound

capacity on the Ram 3500 as being measured and reported according to J2807 standards. Whether comparing a Class-3 and Class-4 truck is fair is another matter.

But the rivalry doesn't end there, with Ram announcing a maximum torque output of 865 lb-ft of torque for the 6.7L Cummins in the Ram 3500, 5 lb-ft more than the '15 Power Stroke. The Power Stroke maintains a decisive lead in peak horsepower however, at 440 hp versus Ram's 385 hp.



NEXT-GENERATION WRANGLER TO SHED WEIGHT, DESIGN TO APPEAL TO MAINSTREAM SUV BUYERS

JEEP ENGINEERS are focusing on incorporating lightweight materials, more efficient engines, and an improved transmission for the planned update in '17—all while preserving the vehicle's legendary off-road capabilities, according to Automotive News.

With Jeep's sights set on luring buyers away from its competitors' more car-like SUVs, there have been rumors that the next Wrangler might lose its current solid front and rear axles. Jeep's CEO Mike Manley sees a reason for this potential change in direction. "You can't sell 19,000-plus retail Wranglers to people who just want to go off-roading," Manley told AN. "Why would somebody else's SUV that's really an on-road 'soft' SUV not be for me a genuine target for Wrangler?"

While big changes are ahead for the '17 Wrangler, don't expect the Wrangler to completely water down its off-road legacy. According to Manley, we will not see the return of a two-wheel-drive Wrangler. "One thing that we will not do is dilute what Wrangler stands for," Manley said. "I killed the two-wheel-drive Wrangler when I took over the brand, and I'm not bringing the two-wheel-drive Wrangler back."



REPORT: GENERAL MOTORS GOING BIG ON DIESELS

GENERAL MOTORS could end up becoming one of the biggest sellers of diesel models among the Detroit Three, if comments made by Steve Kiefer, GM's vice president of global powertrains, is to be believed. According to *Automotive News*, Kiefer said the Cruze would be the first of many diesel-powered passenger cars the company would offer in the U.S. market.

While the term "passenger cars" obviously includes sedans and crossovers, it also includes SUVs, such as the K2XX SUVs, the Chevrolet Tahoe and Suburban and the GMC Yukon and Yukon XL. GM may be developing a V-6 turbodiesel between 3.0L and 3.5L for use in the 1500-series trucks and fullsize SUVs. Combined with the recently introduced 8L90 eight-speed automatic, that combination could give GM the tools it needs to counter Ram's 28-mpg Ram 1500 EcoDiesel, the current reigning champ of truck fuel economy.

In terms of specific models or timeline, Kiefer was somewhat vague. "We will continue to introduce more diesels as appropriate and as the market accepts them," stated Kiefer.



TRENDING NOW

CAUGHT! 2016 Toyota Hilux: Preview of Next Tacoma?

WE SAW some Tacoma test mules driving around earlier this year, but any major mechanical or sheetmetal changes were inconclusive. We now have photos of a refresh to the Toyota Hilux, the global cousin of the Tacoma. Like the new Nissan NP300 Navara, the headlights incorporate LED driving lights, and the overall design appears to split the difference between the current Hilux, which has a more swept-back front end, and the Tacoma, which has a blockier visage.

The Tacoma is by far the best-selling model in the midsize market, but sales have lately been flattening out. To keep the interest level up, Toyota is expected to give the Tacoma a significant refresh in 2016.

Whether we'll see a convergence in styles between the Hilux and Tacoma in the next-generation truck or the continuation of market-specific styling will have to wait for the next-generation Tacoma's official debut.



2014 JEEP CHEROKEE, 2015 CADILLAC ESCALADE AMONG MOST-HACKABLE CARS

IT MAY sound like the plot of the latest Hollywood sci-fi blockbuster, but the prospect of cars being remotely hacked by those with malicious intent is a real possibility. At the recent Black Hat security conference in Las Vegas, hackers Charlie Miller and Chris Valasek presented a report of the least-secure cars from an electronics security standpoint. The '14 Jeep Cherokee and '15 Cadillac Escalade were among the "most hackable." The most secure models reviewed as part of the exercise were the '10 Range Rover Sport, '06 Toyota Prius, and '06 Ford Fusion. Almost all models newer than '10 had some potential vulnerability.

Overall, Chrysler products fared worst. Chrysler said it takes the findings seriously but criticized the report's authors for not coming to them confidentially first before disclosing their findings. The carmakers also pointed out that these vulnerabilities were not actually demonstrably exploited but are based on technical schematics of the vehicles' architecture, which can be obtained through technical service and repair guides through dealers or third parties. Miller and Valasek also reportedly shared their findings with the Department of Transportation, as well as the Society of Automotive Engineers, to help automakers design more secure electronic architectures for future cars.



Holden Building 560hp Maloo Super-Ute



WITH GENERAL Motors' announcement to close manufacturing operations in the country by 2017, the curtain is about to fall on Australian domestic auto manufacturing for good. However, the home-built models will go out with a major

bang. Holden Specialty Vehicles (HSV) has announced it will build a limited-edition LSA-powered ute model named the GTS Maloo.

The very-limited-edition model, of which only 250 will be built for the Australia and New Zealand markets,

will be offered with the option of either a manual or automatic transmission, the latter getting wheel-mounted paddle shifters. The top speed is expected to be electronically limited to 155 mph, although the vehicle is expected to

be capable of a higher speed. As-installed in the Maloo, the LSA makes 577 hp and 546 lb-ft of torque.

The HSV GTS Maloo is expected to be priced at around \$78,800 U.S. and will go on-sale in November.



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The Cost of Pickups

I recently drove a half-ton pickup that was around \$60,000. For a ½-ton with no out-of-the-ordinary stuff (no diesel, no winch, no wide-body, no four-corner air, or desert-flight suspension), I could get an altogether-decent used V8 Ferrari, M5, or 911.

Granted, that Silverado High Country was quite nice, capable of shaming an outgoing Escalade in some respects. Coincidentally, however, I could build and price a '15 LTZ-trim Silverado 2500HD with a slightly longer bed in the same four-wheel-drive Crew Cab configuration that would carry 90 percent more real-world payload and tow 2,200 pounds more. Optioned up with most of the power accessories and ventilated/heated seats the High Country had, plus

the towing mirrors and forged aluminum wheels it didn't, it was missing little more than a power-adjust steering column, driver memory, and the material upgrades. And it was nearly \$4,000 less. Am I

“LIKE MOST CARS, SEGMENT CREEP HAS, WELL, CREPT INTO PICKUPS.”



2015 CHEVROLET COLORADO Z71

buying a pickup or a fancy car with a big open trunk? (Note: All these comparisons were done same day, same zip codes, no incentives, etc.)

I had the same problem when Ram launched the diesel ½-ton, and we were rolling around in \$53,000 crew-cab short-bed four-wheel-drive Longhorn luxu-liners. You could configure a 2500 crew-cab long-bed with the Cummins, two levers in the floor and only truck-useful bits like big mirrors and a trailer-brake controller; you get double the payload and towing capacity for \$7,000 less. Additionally, you could do an SLT crew-cab long-bed with a 6.4L Hemi, 4.10 gears, rear air suspension, limited slip, forged wheels, real mirrors, and a few conveniences and still be less than that ½-ton. It's clearly less lux than a Longhorn and less maneuverable than

the **shorty** ½-ton, though I don't find that much difference in ride quality when loaded.

Ford is not immune to this price dilemma, with \$55,000 ½-tons overlapping sub-\$40,000 Super Duty trucks. Nissan and Toyota are exempt for most purposes because their loaded midsizes are priced right where their lowest trim full-sizes with like cab and drive begin.

And it's only going to get worse with the influx of vans and midsize pickups. When Chevrolet said a Colorado could tow 7,000 pounds, that was already higher than some Silverado V6s. Use a \$4,000 premium for a 2.8L diesel and you could easily end up with a Colorado or Frontier that out-tows its fullsize cousin for little to no more money. And where will a Cummins-powered Titan or Tundra fit in here?

A base Colorado extended cab runs \$21,000 with a manual gearbox and rear camera, almost \$9,000 below a Silverado double-cab WT with automatic but no rear camera. It's \$4,500 less if you envision no usable rear seat in an extended Colorado and compare to regular-cab Silverado. However, a Z71 4x4 Crew Cab Colorado short-bed is \$35,000—that could get you in a Silverado 1500 or even a regular-cab four-wheel-drive ¾-ton.

Decisions, decisions.

Like most cars, segment creep has, well, crept into pickups. Two decades ago there weren't 1-tons rated to tow 10,000 pounds, and some of them barely had more V8 horsepower than the four-cylinder Colorado. Now, mid-sizes do ½-ton work, ½-tons do HD-pickup work, and HD pickups are commercial grade.

And that brings another set of cost factors. How much does it cost for a CDL? What does your insurance agent think of your new semi-in-disguise? What do you think of F-450 tires that cost (see aforementioned price disclaimer) \$185 more, each, than those on the top-rated F-350 (itself essentially a '14 F-450 with a new badge)? Would you rather have more than 15 tons of towing capacity or ride quality based on 80-psi tires rather than 110-psi tires?

I got lucky on my old truck. It required that I pick a spare tire or a rear bumper. I thought the spare more useful, and when I weighed it as delivered, with fuel, it could carry at least a rear bumper more than rated payload. Wouldn't that make a refreshing change?

Skeptical as I am about truck ratings and costs, it could be worse. Researching trailers today, I found one clearly labeled "½-ton towable" that was almost 9,100 pounds empty and boasted a carrying capacity of more than 4,400 pounds giving a GVWR of 13,500. Unless they know something about the '15 F-150 I don't, that's a 1,500-pound miss in the best-case scenario.

I think we need another standard: SAE J2807RV. **TT**

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The 3.0L EcoDiesel V-6 in the Ram 1500 is the first 1/2-ton diesel in the U.S. in more than 20 years and is an example of both the growing sophistication of diesel technology, as well as the trend of engine downsizing in trucks.



The 2.7L EcoBoost V-6 available in the '15 Ford F-150 is the smallest-displacement engine offered in a fullsize truck to date. Despite its small size, it makes more power than the twice-as-large 5.4L Triton V-8 did in the F-150 just five years ago.




By **Edward A. Sanchez**

GAS VS. DIESEL-

PAST, PRESENT AND FUTURE

ONCE VASTLY DIFFERENT COMBUSTION CONCEPTS NOW CONVERGING



If you're one of the many long-term readers and subscribers of *Truck Trend*, you may remember Chuck Schiffsky's article published back in 2002, in which he compared the relative merits between diesel and gasoline engines. While comparison of these two engine types is nothing new, what caught our attention is that the story has been consistently popular on TruckTrend.com, going back more than 10 years. It's almost always in the Top 10, even during momentous months when all-new models have debuted or other major stories have broken. As great of a read as that story was and is, things have changed with truck engines in a major way over the last decade. Some of the assertions and assumptions about gas and diesel engines presented in the original article no longer stand true.

Looking into the future, there are even engine concepts that combine aspects of both gas and diesel engines to the point where distinctions and descriptions may transcend traditional conventions altogether. We take an in-depth look at how far light truck powertrain technology has come

over the last decade, revisit some of the assumptions about the traditional characteristics of gas and diesel engines, and where truck engine technology may be heading in the near future.

Paul Seredynski, Global Powertrain Technology Communications manager for Ford, said the new 2.7L EcoBoost is a textbook example of the convergence of gasoline and diesel technologies. "The Compacted Graphite Iron (CGI) block material was first used on the 6.7L Power Stroke diesel and is now being used in the 2.7L EcoBoost."

Fuel Economy: Diesel Still Leads, But Margin Narrows

Conventional wisdom was that diesel was the only way to deliver significant fuel economy improvements in trucks. However, the growing emergence of direct-injected and turbo-charged gasoline engines have made the fuel economy difference between gas and diesel engines much smaller than before. Seredynski said that regardless of fuel, the end goal is the same: maximum power from the minimum amount of fuel.



Back in the '90s and early 2000s, the difference was often more than 30 percent. At that time, some of the gasoline engines in the truck market were just starting to transition over to port fuel injection, and almost all truck engines were still two-valve. Today, advancements on gasoline engines, such as direct-injection, cylinder deactivation, variable valve timing, and turbocharging, have given powertrain engineers a vastly broader toolkit from which to build gasoline engines that are both economical and powerful.

The Ram 1500 EcoDiesel is the current full-size pickup mileage champ at 20/28 mpg in EPA testing, but Ford's new 2.7L EcoBoost V-6 will likely not be far behind. Another enabling technology that has increased economy on both gas and diesel engines are transmissions with much higher gear counts, with six speeds now considered the bare minimum, just as eight-speeds and higher are starting to become the norm.

Refinement: Gas, But Barely

Diesel engines have evolved tremendously over the last 20 years in almost every area, but perhaps the most impressive strides have been made in the area of noise, vibration, and harshness, otherwise known as NVH. The biggest enabler of this is vastly more sophisticated injection technology, which has made diesels nearly the peer of their gasoline counterparts.

In the case of direct fuel injection, the technology has had a different effect on gasoline and diesel engines. While many gasoline direct-injection engines have a characteristic injector "tick," the technology has enabled diesel combustion events to become much quieter, thanks to the use of pilot injection and multiple injection pulses per combustion event. This reduces the sudden combustion

"DIESEL ENGINES HAVE EVOLVED TREMENDOUSLY OVER THE LAST 20 YEARS IN ALMOST EVERY AREA."

pressure spike that's the culprit in the familiar diesel clattering noise. "It's interesting that common rail direct injection for diesel is used to move toward lower noise and lower emissions, to close these gaps a diesel has compared to gasoline, while direct injection for gasoline is used to close the gap a gasoline engine has versus diesel fuel economy," said Gary Arvan, General Motors' program manager and chief engineer for Duramax Diesel Engines.

For some buyers, the characteristic diesel sound is actually a positive attribute. "There is a sector of the market that wants a diesel sound, usually heavy-duty truck customers. But the light-duty truck, SUV, and car custom-

ers want refinement, especially in the North American market, because the customers are more accustomed to the behavior of gasoline engines," said Luis Cattani, chief engineer for diesel programs at Chrysler.

Although he concedes the refinement gap between diesel and gas engines hasn't disappeared altogether, Arvan said it's no longer a deal-breaker for informed buyers. "I think this concern is gone for those who are familiar with modern diesels. Diesel and gas [engines] are not yet on par for noise, and may never be, but they are close enough when you apply the best technologies to engine and vehicle. With proper technologies applied, I don't think NVH is a deterrent to diesel purchase."

Power/Torque: Decisively Diesel

In the original 2002 feature, the "power" verdict was ruled a split decision, with gasoline engines given the nod for the generally higher peak horsepower output, but diesels given the advantage for their typically higher torque figures. Today, we can fairly decisively rule in diesel's favor in the power argument, at least within the context of trucks. Yes, gasoline engines of similar displacement still have an advantage in peak power, but the gap has narrowed from 50-plus horsepower to around 20 or 30.

However, the torque advantage of diesels to their gasoline counterparts has exploded



With consumers' increased familiarity with the additional maintenance item of adding diesel exhaust fluid (DEF) at oil change intervals, some speculate that could open the door to secondary fuels like methanol or ethanol that could enable even greater power output from smaller-displacement gas engines.

from about 80 to 100 lb-ft to about 300 to 400 lb-ft or more. What do you want when you're towing and hauling? Torque, and diesels have more of it than ever. It's no coincidence that more than 60 percent of HD pickups are sold with diesels.

Cost: Pay Now, Save Later—Tie

The one area where diesels have not significantly improved relative to their gasoline-powered peers is in the area of initial cost. For HD models, the diesel engine option still typically runs in the \$8,000 range, compared to between \$1,000 to 2,000 for the premium gasoline engine option. Ram touts the value equation of the EcoDiesel in the Ram 1500 relative to the Hemi at only \$2,850, but when compared to the base Pentastar gas V-6, the

The Ram 1500 (left) and the '15 Chevrolet Silverado High Country/GMC Sierra Denali (below) are examples of two trucks with eight-speed transmissions. The broader ratio spread allows the engines to work in their most efficient RPM and load ranges more often, increasing fuel economy.



The '15 Ford Power Stroke V-8 and Ram 3500 Cummins I-6 (below left and right) are both examples of how dominant diesels have become in torque output. Both engines produce more than double the torque output of their gasoline counterparts.



premium is more than \$4,000. Over the course of several years, diesels will pay for themselves in fuel savings, but be prepared to shell out for a significant up-front cost if you want to go diesel. Diesel fuel prices also vary wildly depending on the season, region, and even individual fuel retailer, sometimes going for less than regular gasoline and sometimes going for more than premium.

An additional wrinkle that's been added to the equation within the last few years is the addition of urea-based Diesel Exhaust Fluid (DEF), required to meet NOx emissions requirements. The cost is only about \$20 every few thousand miles, but it's still an operational cost you don't have to deal with on gasoline engines. Most of the sources we talked to for this story didn't see the additional requirement for DEF on modern diesels as being a major purchase deterrent, as the size of the tanks are generally designed so that the DEF refill intervals coincide with regular maintenance, such as oil changes. The wider availability of DEF now, compared to 2011, makes it easy to find and purchase it at most auto supply stores, service stations, and major retailers.

More Tanks, More Power?

With the growing familiarity of consumers to the maintenance needs of newer diesels, it opens up the possibility of multi-fuel engines at some point in the future. This is already being seen in the performance aftermarket with the growing proliferation of water-meth-

anol systems for both diesel and gasoline engines. Gale Banks, one of the early pioneers in diesel performance, as well as gas turbo engines, said, "Now that newer diesels have an auxiliary urea tank, it opens up the possibility of adding a secondary fuel for gasoline engines as an anti-detonant, such as alcohol. The idea of an anti-detonant fluid is not new. It's been around since the early 1900s." The cooling effect of the methanol injection systems, as well as the higher octane rating of alcohol enable higher cylinder pressures and more boost, allowing smaller engines to produce more power.

Banks said he's pleased and somewhat amused by the sudden proliferation of downsized gasoline turbo engines, a concept he advocated as early as the mid-1970s when he was leading a course at General Motors Institute (now Kettering University) on turbo-charged engine engineering and design. "I envisioned a 90 ci (1.5L) turbocharged engine as being the engine of the future. With the right fuel management and engine controls, you could have a very powerful, yet very efficient engine," he said.

Downsizing and Turbos: A Trend Here to Stay

The trend toward smaller-displacement, more efficient engines is here to stay and will continue into the foreseeable future. This trend is equally applicable to gas and diesel engines. Just as we're seeing the introduction of the 2.7L EcoBoost V-6 in addition to the 3.5L version, Mercedes-Benz is now offering a 2.1L I-4 diesel in addition to the standard 3.0L V-6 diesel in its Sprinter commercial van. Thanks to the seven-speed transmission paired with the 2.1L engine, the performance difference between the two powertrains is negligible.

Will the day come when we see a four-cylinder engine in a fullsize truck? The idea may seem far-fetched now, but GVWR-equivalent vehicles in Europe and other parts of the world have been using four-cylinder engines for years. Just remember that Ford's new 2.7L EcoBoost makes more power than the 5.4L 3-valve Triton V-8 did just five years ago. "There's no replacement for displacement" may be a familiar, shopworn line at classic car shows and among traditionalists, but for the majority of auto manufacturers and a growing number of consumers, technology and turbo-charging seem to be filling the role formerly occupied by big-inch engines just fine. **TT**

General Motors' fifth-generation V-6 and V-8 engines may just seem like an evolution of a decades-old design, but incorporate state-of-the-art materials, engine management, and direct fuel injection, enabling them to remain competitive with competitors' multi-valve, turbocharged offerings.



RAM TOUGH DILEMMA: HEMI VS. ECODIESEL

WHICH IS THE
BETTER ENGINE
FOR YOU?





RAM 1500 LARAMIE
LONGHORN ECODIESEL



RAM 1500 LARAMIE 4X4

By **Edward A. Sanchez**

In the earlier days of fullsize trucks, the decision of which engine option to get was a pretty easy one. There was almost always an entry-level, low-cost six cylinder and one or two optional V-8s. Today, the options are a lot more varied, including turbocharged gas V-6s, and with the advent of the '14 Ram 1500 EcoDiesel, the first light-duty diesel in the segment in more than two decades.

For many of you reading this, your mind is already made up. Some automatically gravitate to the traditional throaty rumble of a naturally aspirated V-8, and others instinctively go for the more economical option.

We're going to take a look at two of the Ram 1500's engine options and shed a little more light on the relative merits and trade-offs of each.

Overall Power: Hemi

Yes, it's true the EcoDiesel does put out 10 more lb-ft of torque than the 5.7L Hemi on paper, but the Hemi has a decisive edge in horsepower, with 155 more ponies than the Italian-built diesel. It also has a slightly higher maximum towing capacity at 10,400 pounds, a 1,200-pound edge. In our testing, it's also been about 2 seconds quicker from 0 to 60 mph, as well as being quicker through the quarter-mile. And while you can feel the EcoDiesel's torque, and yes, it is possible to

chirp the tires, there's no denying the Hemi's advantage in outright speed. It will put the EcoDiesel on the trailer, no contest.

Noise, Vibration and Harshness: Draw

The differences in this category are more qualitative than quantitative. Both engines are reasonably civilized and smooth, although with the multitude of aftermarket exhaust options for the Hemi, it's not hard to get one to speak loudly. Although there are some that are suckers for diesels' gravelly groan, most ears will probably find the Hemi's baritone burble much more aurally appealing. The EcoDiesel seems to be a little better-isolated in the Ram than in the Grand Cherokee, and from a quantitative noise standpoint, the EcoDiesel is probably marginally quieter at most speeds. This one largely comes down to personal taste.

Economy: EcoDiesel

This is the one area where the EcoDiesel shows a considerable advantage over the Hemi. In two-wheel-drive form, the EcoDiesel has a decisive 5 mpg city and 6 mpg highway advantage and a 4 mpg city and 6 mpg advantage on four-wheel-drive models. That's a big difference, and that difference gets even wider when towing, where diesels tend to be much more efficient than gas engines. In *Motor Trend's* 2014 Truck of the Year test, in a week of pedal-to-the-metal testing, the EcoDiesel's average MPG was in some cases double that of its gasoline V-8 counterparts at the test. If getting



2013 RAM 1500 LARAMIE 4X4

*Due to availability, we used a '13 Ram 1500 Hemi test vehicle. It is mechanically identical to the '14 model year as there were no major changes during this period.

2013 Ram 1500 Laramie 4x4

BASE PRICE: \$44,920

PRICE AS TESTED: \$52,320

VEHICLE LAYOUT: Front-engine, 4WD, 5-pass, 4-door truck

ENGINE: 5.7L OHV 16-valve V-8

power	torque	trans
395 hp	407 lb-ft	8 speed auto

CURB WEIGHT (F/R DIST): 5,843 lbs (56/44%)

0-60 MPH: 7.0 sec

QUARTER MILE: 15.5 sec @ 87.7 mph

BRAKING, 60-0 MPH: 122 ft

MT FIGURE EIGHT: 29.1 sec @ 0.58 g (avg)

EPA CITY/HWY FUEL ECON: 15/21 mpg

TESTED FUEL ECON: 15.4 mpg



The 5.7L Hemi V-8 engine has been the cornerstone of the Ram 1500 for over a decade. In its latest trim, the powerplant churns out 395 hp and 407 lb-ft of torque, making it one of the most powerful ½-ton engines available.



maximum miles per gallon out of your truck is a priority, the EcoDiesel is the easy choice.

Maintenance and Cost of Operation: Draw

Traditionally, cost of operation and maintenance would solidly fall in diesel's favor. However, there are more variables on today's models that weren't the case in decades past. The first wild variable is fuel prices. Depend-

ing on the region of the country, or even down to the neighborhood you're in, diesel can be either cheaper than 87-octane unleaded or more expensive than premium. Diesel also tends to see a lot larger seasonal variations in price than gasoline.

In terms of engine maintenance, diesels have the advantage of not having spark plugs, but newer diesels almost all require urea DEF aftertreatment, a \$10-\$20 cost approxi-

mately every oil-change interval to top off the reservoir. The EcoDiesel also has an oil capacity of 10.5 quarts compared to the Hemi's 7 quarts, so plan on spending a little more on oil changes.

All diesel models currently sold in the U.S. are also turbocharged, an extra item that's not a factor on the Hemi. Although today's turbochargers are significantly more reliable than those nightmares in the 1980s that were as effective at burning oil as creating power, in the longer-term, it is a potential expense if you plan on keeping your truck for more than 150,000 miles.

Towing and Hauling: EcoDiesel

Yes, we know what you gas fans are thinking:

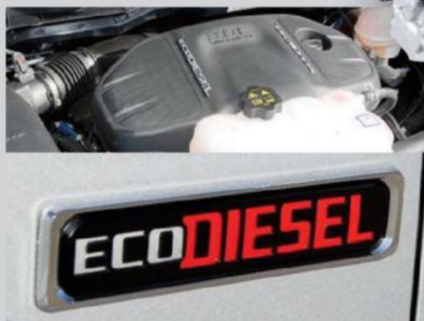
BREAK EVEN POINT: 142,600 MILES

Based on AAA's current national fuel price averages of \$3.43 per gallon of gasoline and \$3.80 per gallon of diesel. Ram 1500 Hemi V-8 has an average EPA fuel economy of 18 mpg combined, and the Ram 1500 EcoDiesel V-6 has an average EPA fuel economy of 23 mpg combined.



2014 RAM 1500 LARAMIE LONGHORN ECODIESEL 4X4

For 2014 Ram returned to the ½-ton diesel game by introducing the 3.0L V-6 EcoDiesel. This mighty engine pumps out 420 lb-ft of pavement-shattering torque and does it while getting nearly 30 mpg.



2014 Ram 1500 Laramie Longhorn EcoDiesel 4x4

BASE PRICE: \$49,825

PRICE AS TESTED: \$56,640

VEHICLE LAYOUT: Front-engine, 4WD, 5-pass, 4-door truck

ENGINE: 3.0L DOHC 24-valve V-6

power	torque	trans
240 hp	420 lb-ft	8 speed auto

CURB WEIGHT (F/R DIST): 6,091 lbs (57/43%)

0-60 MPH: 8.9 sec

QUARTER MILE: 16.7 sec @ 81.8 mph

BRAKING, 60-0 MPH: 134 ft

EPA CITY/HWY FUEL ECON: 19/27 mpg

TESTED FUEL ECON: 19.97 avg / 31.36 best

"What the hell? You say the Hemi has a higher towing capacity, but you pick the EcoDiesel as the better choice for towing?" Yes. Bear with us here. It's true the Hemi has a higher overall tow rating than the EcoDiesel. However, when you factor in the performance variable between loaded and unloaded, as well as the economy difference, the EcoDiesel starts looking like the better choice. Although the Hemi is a perfectly acceptable tow companion, from the seat-of-the-pants view, it feels like there's less degradation of performance when towing or hauling with the EcoDiesel than with the Hemi. The EcoDiesel feels happy hauling a load, whereas the Hemi is happier hauling ass. And as noted earlier, the diesel's efficiency margin widens under load, making

your likely towing mpg significantly higher than that of the gasoline-powered truck.

Frankly, if you regularly tow more than 6,000 or 7,000 pounds, or haul a payload more than 2,000 pounds on a routine basis, you're probably better off with a ¾ or 1-ton truck. Yes, on-paper, ½-tons can handle loads this heavy, but it's much less of a burden on the larger models and gives you a lot more wiggle room if you find yourself having to tow or haul heavier loads.

Verdict: Something for Everyone

So which truck is best for you? You're going to have to make that decision for yourself. Both the Hemi and the EcoDiesel are great engine

options but have distinctly different personalities. The Hemi is the red-blooded, all-American choice, with robust, confident V-8 power and sound and is fully capable of truck duty. The EcoDiesel has an almost foreign sound in the Ram, with steady, confident, but not overwhelming, power and acceleration. Its reward is outstanding fuel economy in both real-world driving, as well as towing or hauling. Considering the \$8,000-plus price premium the HD diesel powertrains carry over their gasoline counterparts, the EcoDiesel's \$2,850 premium over the Hemi looks like a relative bargain. Whether you like traditional V-8 power and sound or modern-day diesel efficiency, the Ram 1500 offers an excellent engine for either preference. **TT**



BMW X5 XDRIVE 35i

By **Jason Gonderman** • Photos By **Jason Gonderman**

When Americans think of diesel-powered vehicles, the first thing that likely comes to mind are heavy-duty pickups. It's quite unfortunate that we've been trained to think this way. However, thanks to the latest influx of small-displacement diesel-powered cars and SUVs, we're slowly starting to see the light, and we have Europe to thank for it.

Now, before you go sending angry letters, we'll address what's likely question number one. Yes, the American-made Jeep Grand Cherokee is offered with the 3.0L EcoDiesel. And yes, it is fantastic! However, we already looked at that engine as installed in the Ram 1500. So in an effort to not repeat ourselves, we slid behind the wheel of the BMW X5, which is offered with a 3.0L inline six-cylinder in both gasoline and diesel configurations.

Luxury Accommodations

Interestingly enough, when researching diesel-powered SUVs available for purchase in the U.S., most are available from luxury brands. Audi offers up the Q5 and Q7, Mercedes drops an oil-burner in the GLK and ML, Porsche fit a 3.0L V-6 in the Cayenne, Volkswagen gets it done with the Touareg,

BMW brings to the table a diesel offering in both the X3 and X5, and lastly, the Grand Cherokee EcoDiesel will give any of these a decent run for their money. What are missing from the list are the entry-level and compact-size SUVs. Jeep had a go of it for a short bit when they offered a 2.8L inline-four diesel in the Liberty, but that experiment was ultimately short lived. Unfortunately, this means getting into a diesel SUV is going to require one to open their wallet just a bit wider than normal.

The Power Difference

Back in the BMW, we chose the X5 platform for our test largely because of its similar engine options. The X5 is available with a 3.0L inline-six engine for both the 35i and 35d. However, don't be confused, as aside from obvious, these two engines are completely different animals.

The 35i comes equipped with a turbocharged gasoline direct-injection engine that cranks out 300 hp and 300 lb-ft of torque. It does this



LUXURY PEOPLE MOVERS

SPARK
PLUGS
OR GLOW
PLUGS?



BMW X5 XDRIVE 35d



2014 BMW X5 xDRIVE 35i

2014 BMW X5 xDrive 35i

BASE PRICE: \$55,100

PRICE AS TESTED: \$67,375

VEHICLE LAYOUT: Front-engine, AWD, 5-pass, 4-door, SUV

ENGINE: 3.0L 24-valve I-6

power	torque	trans
300 hp	300 lb-ft	8 speed auto

CURB WEIGHT: 4,934 lbs

0-60 MPH: 6.0 sec

QUARTER MILE: 14.6 sec @ 96 mph

BRAKING, 60-0 MPH: 165 ft

TESTED FUEL ECON: 17.6 mpg

BMW has offered inline-six engines for decades and has perfected the art. The 3.0L turbocharged gasoline direct-injection mill in the 35i cranks out an impressive 300 hp and 300 lb-ft of torque.



through the use of a twin-scroll turbocharger with variable valve control (BMW calls it Double-VANOS and Valvetronic). Tucked under the hood of the 35d is a diesel engine that churns out 255 hp and 413 lb-ft of torque. This engine uses a variable geometry turbocharger, high-pressure common-rail direct fuel injection, and a 24-valve dual overhead cam valvetrain. Keeping weight down for the diesel is an aluminum engine block.

When it comes down to seat-of-the-pants feel, the 35d takes the win hands down.

While it comes up 45 hp short to its gasoline sibling, the 113 lb-ft torque advantage sends the portly SUV off the line with a bit more fervor. That kick is short-lived, however, as on paper, the 35i will beat the 35d from 0-60 mph.

Fuel Economy

This is where things start to get a little weird. On paper and in reality, the diesel wins—

there's no question about that. The 35i comes in with an EPA rating of 18 mpg in the city and 27 mpg on the highway, while the 35d enjoys a slight bump to 23 mpg city and 31 mpg highway. Unfortunately, we never got anywhere near those numbers in our real-world testing.

With our test drivers behind the wheel of both SUVs driving in an urban environment, both vehicles returned fuel economy numbers in the high teens. On a straight, flat, desolate highway run the 35i produced a best tank of 23 mpg, falling short of its 27-mpg rating. Unfortunately, time constraints kept us from making the same trek with the 35d, but we can surmise that it too would have left us scratching our heads.

BREAK EVEN POINT: 75,000 MILES

Based on AAA's current national fuel price averages of \$3.63 per gallon of premium gasoline and \$3.80 per gallon of diesel. BMW X5 xDrive35i average EPA fuel economy of 21 mpg combined, BMW X5 xDrive35d average EPA fuel economy of 26 mpg combined.

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Cooperstown, N.Y.

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2014 BMW X5 xDRIVE 35d

2014 BMW X5 xDrive 35d

BASE PRICE: \$56,600

PRICE AS TESTED: \$71,700

VEHICLE LAYOUT: Front-engine, AWD, 5-pass, 4-door, SUV

ENGINE: 3.0L 24-valve turbodiesel I-6

power	torque	trans
255 hp	413 lb-ft	8 speed auto

CURB WEIGHT: 5,173 lbs

0-60 MPH: 7.3 sec

QUARTER MILE: 15.6 sec @ 86 mph

BRAKING, 60-0 MPH: 165 ft

TESTED FUEL ECON: 20.5 mpg

While the diesel engine found in the 35d no longer sports twin-turbochargers, it does retain the TwinPower Turbo moniker.



If we had a bit more time and patience, we could likely reproduce the EPA estimates, but it's our feeling that we shouldn't have to "try," as driving normally should produce these results. While we were disappointed with the fuel economy overall, the diesel still has a healthy advantage over gasoline. And with the 35i's thirst for premium fuel, the cost difference between the two fuels is negligible.

Driving Technology

We would be remiss if we didn't at least touch on some of the technology that the BMW X5 has to offer. While available on both gas and diesel variants, it's these features that make the BMW what it is. Both engines are equipped with stop-start technology, which allows the engine to shut off when appropriate, such as while sitting at a red light, to help save fuel.

On the 35i, this process was nearly seamless. However, the 35d seemed to take an extra second or two of cranking to fire back up.

Both vehicles were also equipped with xDrive all-wheel-drive system. The xDrive system works in conjunction with the eight-speed Steptronic automatic transmission to provide a more dynamic driving experience when placed into Sport mode by firming up the suspension, changing torque allocation, and altering shift points. Both the 35i and 35d also have EcoPro mode, which works in the same manner as Sport, but is designed to maximize fuel economy. EcoPro saps all the fun out of the driving experience, but the reward comes in the form of more miles per gallon.

Bottom Line

The simple reality is this: If you were sat blindfolded in the passenger seat of both X5 variants and asked to guess which one is powered by gas and which one is diesel, you wouldn't be able to tell. Both are so highly refined that from inside of the vehicle there's really no way to tell one from the other besides looking at the fuel gauge. From a cost perspective, the diesel engine will set you back about \$1,500 over the cost of a 35i. If and when the cost of diesel fuel swaps back to being cheaper than regular unleaded, the low buy-in will be quickly repaid in fuel economy savings. So if you're in the market for an SUV, we implore you to give the diesel variant a try. You won't be disappointed. **TT**

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By **Lee Lovell** • Photos By **Jason Gonderman** and **Robert Guio**

THE BATTLE OF THE TWO HEAVY



CHEVROLET SILVERADO
2500HD DURAMAX

EXPLORING GAS VERSUS DIESEL IN A HEAVY-DUTY PICKUP



Chevrolet Silverado
2500HD Vortec

The debate of whether to buy a gasoline or diesel-fueled engine has been going on longer than many readers of this magazine have been alive. And much like politics, people leave these arguments even more convinced that their preferred powertrain is the best and the other is an abomination in the automotive world.

As you can likely tell, this is going to be another one of those stories. It would also be fair to ask what the point of doing another one would be, especially after we just stated you pretty much can't change people's minds on the subject. Well, the truth is, with how refined today's modern gasoline and diesel engines have become, choosing one over the other isn't as easy as it used to be. Mostly, it comes down to what you value most and good old-fashioned money.

To figure out which is better in the world of heavy-duty pickups, we got behind the wheel of two '15 Chevrolet Silverado 2500HDs—one with the gasoline-fed Vortec 6.0L V-8 and the other with the diesel-digesting Duramax 6.6L V-8—and got to work.

Power

Ask diesel enthusiasts what they love most about oil-burners, and the answer will likely be power. In the case of these ¾-ton heavy-duty pickups, we can't blame them here. The

6.6L diesel produces 397 hp compared the 6.0L V-8's 360 hp. However, those numbers only tell half of the story: The Duramax churns out 765 lb-ft of torque, more than double that of the Vortec's 380 lb-ft. When you consider that both trucks weigh in excess of 7,100 pounds, the oil-burner has the clear advantage.

That's not to say the Vortec engine is a slouch. With 90 percent of the available torque delivered as low as 2,000 rpm, the gas V-8 will adequately take care of any driving scenario you give it. That's the problem, though; it's just adequate, and to be brutally honest, it feels like a hybrid could accelerate faster than this beast. Driving around the streets of Los Angeles, where the ability to merge quickly is a necessity, a mash of the skinny pedal is met with more noise than go, although we'll never complain about having to listen to that naturally aspirated V-8 burble. Admittedly, the big city is not the natural habitat for a ¾-ton, so this isn't as much of a concern in less-populated areas. Its gas-fed competitors from Ram and Ford are powered by 410 and 385hp V-8s, respectively, so it's fairly easy to imagine what this powertrain could do with more power.

The Duramax, though, seems much better suited for the task of hauling the truck's mass around. Although lag from the turbo is apparent, it spools up relatively quick and the engine's 765 lb-ft is put to work quite nicely. That massive amount of twist,

WEIGHTS



2015 CHEVROLET SILVERADO 2500HD DURAMAX

2015 Chevrolet Silverado 2500HD Duramax

BASE PRICE: \$49,325

PRICE AS TESTED: \$62,925

VEHICLE LAYOUT: Front-engine, 4WD, 5-pass, 4-door truck

ENGINE: 6.6L Turbodiesel Duramax V-8

power	torque	Allison 1000 trans
397 hp	765 lb-ft	6 speed auto

CURB WEIGHT: 7680 lbs

0-60 MPH: 7.2 sec

QUARTER MILE: 15.6 sec @ 86.8 mph

BRAKING, 60-0 MPH: 134 ft

TESTED FUEL ECON: 15.3 mpg

The Duramax engine is the torque champ of the two engines, delivering 765 lb-ft of twist.



plus the fact that all of it is available at a low 1,600 rpm, is a clear testament to why many prefer diesels. Daily driveability is also improved with a 0-60 mph time of 7.2 seconds. However, it is important to note the GM's crosstown rivals, Ram and Ford, rate their diesels at 865 and 860 lb-ft, respectively. Rumor has it that GM has a significant update in the works for the Duramax to debut soon, so stay tuned, as it is doubtful GM will remain content with being third best.

Capability

Another merit diesel enthusiasts love to boast about is towing capacity. Interestingly, there is no clear winner here, at least as far as the numbers are concerned. Using the SEA J2807 towing standard, Chevrolet rates the ball-hitch towing capacity of both the Duramax and the Vortec models we tested at an even 13,000 pounds. However, when trailering with a fifth-wheel, the Duramax takes a 3,100-

pound advantage over the Vortec at 17,100 versus 14,000 pounds.

As far as payload capacity is concerned among our testers, the Duramax wins with a rating of 2,793 pounds. That said, our Vortec tester came with the gaseous option (\$9,500) that, when equipped, drops the payload rating to 2,493 pounds—most likely due to the CNG tank that consumes nearly a third of the 6 1/2-foot bed. Order a 2500HD without it, and payload actually jumps to 3,152, besting the Duramax by 359 pounds.

Regardless of whether you're hauling stuff in the bed, on the fifth-wheel, or on the ball hitch, the Duramax certainly has the advantage here, where torque is king. Where gas engines typically take an efficiency hit under

BREAK EVEN POINT: 104,938 MILES

Based on AAA's current national fuel price averages of \$3.43 per gallon of gasoline and \$3.80 per gallon of diesel. Silverado 2500HD Vortec V-8 average fuel economy of 10.3 mpg combined, Silverado 2500HD Duramax V-8 average fuel economy of 15.3 mpg combined.



2015 CHEVROLET SILVERADO 2500HD VORTEC



The Vortec engine may be down on power compared to the Duramax but excels with a lower cost of entry by \$8,395.

a heavy load, the diesel's 765 lb-ft of torque will keep pulling strong under acceleration and when attacking a grade. As such, fuel economy for the Duramax doesn't take as big of a hit when compared to a gas engine. Both came with an integrated trailer-brake controller, but the Duramax also takes the advantage here with a standard exhaust brake. The system closes off the exhaust by use of the variable-geometry, causing backpressure in the exhaust manifold and dynamically slowing down the engine without using the brakes—a serious advantage when trailering a heavy load down a hill.

Economy

When looking at how economical an engine

is, it's purely a number game and one that almost always goes in favor of diesels. Because these are ¾-ton trucks, you won't find any EPA fuel-economy estimates on the window sticker, and likely for good reason. You can imagine our reactions when our testing on the Vortec yielded 10.3 mpg in a healthy mix of city and highway driving—we anticipated it to be bad, but not that bad. As expected, though, the Duramax is the clear winner here, having achieved 15.3 mpg. Yep, that is about 50 percent better fuel economy than the Vortec. Fuel consumption differences will become even more apparent when hauling a heavy load.

But here is where diesel hits its biggest objection: price. Tick the box for the oil-

2015 Chevrolet Silverado 2500HD Vortec

BASE PRICE: \$42,655

PRICE AS TESTED: \$58,800

VEHICLE LAYOUT: Front-engine, 4WD, 5-pass, 4-door truck

ENGINE: 6.0L Vortec V-8

power 360 hp	torque 380 lb-ft	Hydra-Matic 6L90 trans 6 speed auto
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CURB WEIGHT: 7,184 lbs

0-60 MPH: 8.5 sec (est)

QUARTER MILE: 16.6 sec @ 83 mph (est)

BRAKING, 60-0 MPH: 128 ft (est)

TESTED FUEL ECON: 10.3 mpg

burner and you will have to hand over \$8,395. That can buy a lot of gasoline, even to make up for the loss of fuel economy. But while that may be the biggest argument against diesels, we doubt that has changed many people's minds. After all, it is hard to go back after you've experienced the addicting torque of a diesel.

So, which one is better? Well, it depends. After all, each engine will work great at any challenge thrown its way, and with how refined both engines have now become, you'd likely never be able to distinguish between them from behind the wheel. That is, until you step on the accelerator and discover how different these two beasts they are. At this point, you just need to determine your priorities and how deep your wallet is. **TT**

OIL-BURNING



IG NISSANS

BEHIND THE WHEEL OF THE DIESEL TITAN AND FRONTIER

By **Jason Gonderman**
Photos By **Jason Gonderman**



If you've been paying any attention lately to the new truck market, you're probably well aware that the talk of diesel is big right now. With the Ram EcoDiesel taking the market by storm and the impending Cummins 5.0L V-8-powered Nissan Titan causing more commotion than just about any recent ½-ton truck launch, it's probably fair to say that Americans are ready. We recently had the opportunity to jump in to two very unique and very different pickups: a Cummins-powered Nissan

LEFT: If you look really hard behind the grille, you'll notice the charge air cooler, which to the trained eye would be the only outwardly visible sign that something is different about this Frontier. Once running though, its classic diesel clatter is a dead giveaway.

Titan and Frontier—and they're not the ones you're thinking of.

ATLAS Titan

Long before the Cummins ISV 5.0L Titan was announced to the public, Cummins was involved with the U.S. Department of Energy on the ATLAS project. Based on a ½-ton pickup application, Cummins partnered with Nissan to meet the goals of the DOE project. A Nissan Titan was fit with a modified ISF 2.8L four-cylinder engine with the directive to achieve 40 percent better fuel economy than a V-8 gasoline engine while reducing NOx emissions. The program began in 2010 and is set to conclude at the end of 2014.

Cummins currently has two '10-model-year ATLAS development mules, and we were allowed to slip

ABOVE: This '10 Nissan Titan was the first one ever to be powered by a Cummins diesel engine. Built in conjunction with Nissan and the Department of Energy, the ATLAS program set out to build a 1/2-ton truck with a small-displacement diesel engine that matched the factory V-8 in torque, improved on fuel economy, reduced NOx emission, and provided reasonable NVH levels for passengers.

into one of them for a quick spin. Aside from efficiency, a lot of the program work, has been focused on maintaining power and reducing noise, vibration, and harshness (NVH) from the diesel engine. From our experience, they've far exceeded these goals. The truck was plenty powerful and moved about nearly as quick as when equipped with the stock 5.6L V-8, and from inside the cab, the engine felt and sounded just as smooth as the gasoline model.



Our short time in the ATLAS Titan served to only reinforce that the next generation Cummins-powered Titan is going to be an animal. The work Cummins has done on this large-scale research project is simply amazing, and hopefully we'll see the fruits of their labor in future products. To learn more about the ATLAS project, visit energy.gov.

Diesel Frontier

Another vehicle of great interest right now is the Cummins-powered Nissan Frontier. Earlier this year, Nissan paraded out a shiny silver and red Frontier equipped with an ISF-based 2.8L inline-four diesel engine mated to a ZF eight-speed automatic transmission. The DieselRunner concept was met with much fanfare; however, Nissan has remained adamant that it is nothing more than a concept. Fortunately for us, this isn't the only Frontier that Cummins has repowered.

Back at their shop in Columbus, Indiana, lives a four-wheel-drive extended cab '10



Frontier that had its heart replaced with an ISF 2.8L many years ago. The engine is mated to the truck's original six-speed manual transmission thanks to a custom bellhousing adapter. This Cummins-owned parts runner has spent the past several years racking up miles traveling between facilities and, in the process, has been proving the concept that a small-displacement diesel is perfect in this midsize platform.

ABOVE: This '10 Nissan Frontier started its life with a gasoline 4.0L V-6 engine. However, once the guys at Cummins got ahold of it, it was transformed into an oil-burner. A 2.8L ISF inline-four diesel now resides where the gas V-6 once was and is mated to the factory six-speed manual transmission through the use of a custom bellhousing adapter.

LEFT: The ISF-based 2.8L engine in the ATLAS Titan been massaged inside and out in an effort to meet the goals of the program. In fact, so much so that it shares almost nothing in common with a run-of-the-mill ISF anymore. Interested in the specific details? All of it is made public at energy.gov.

The ISF 2.8L inline-four diesel engine used in the Frontier is exactly as delivered from the plant for a commercial application. The engine shares many features with the automotive diesels in use today, including high-pressure common-rail fuel injection, turbocharging, intercooling, and the use of exhaust gas recirculation (EGR). This particular engine is outfitted with a computer calibration that is good for 200 hp and 400 lb-ft of torque.



We were given the keys and told to go have fun with their little Frankenstein truck, and fun we had. The engine is calibrated with the company's hottest tune, making 200 hp and 400 lb-ft of torque. It has no issue breaking the tires loose through first and second gear. Just having the ability to row your own gears makes the experience that much better, at least for us. Even in a more industrial trim than normal, this little engine is producing fuel economy that's more than 50 percent better than the old gas V-6.

This was one truck that we really didn't want to give back. Based on our time with this truck and the few minutes we got to spend in the automatic transmission-equipped DieselRunner concept a few months back, we can definitely say that a diesel-powered midsize pickup is the way to go. They make great power, have excellent economy, and are downright fun to drive. If a truck like this ever comes to fruition, you better believe we'll be first in line at the dealership. **TT**

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DO01: THE FIRST CUMMINS-POWERED RAM

By **Jason Gonderman**

Photos By **Jason Gonderman and courtesy of Cummins**

The relationship between Chrysler and Cummins has a rich history, and it all began with a simple '85 Dodge Ram D350 Prospector. This two-wheel-drive, single-cab, longbed pickup started its life with a gasoline V-8 engine, and no one knew when it was built that it was destined for greatness. Once in the capable hands of the engineers and mechanics at Cummins, the original powertrain was tossed aside in favor of a 12-valve, rotary-pumped, inline-six diesel engine. The rest is, as they say, history.

If you wanted to buy a diesel pickup in the early-to-mid-'80s, the options were pretty slim. You either got a Chevy or GMC with a naturally aspirated indirect-injection 6.2L V-8 that labored to produce 130 to 143 hp and 240 to 257 lb-ft of torque or—if you were a Ford fan—you could have an International Harvester-sourced 6.9L V-8 that made 170 hp with 315 to 338 lb-ft of torque. However, if you were looking to do some heavy hauling, it was far more likely that a big-block gasser was the truck of choice. “What about Dodge?” you ask. At the time, they were sitting on the bench all alone, with no diesel or big-block gas engine options to speak of.



INVEST





Ram and Cummins have enjoyed a partnership that has lasted more than 30 years with no end in sight. Both engine and vehicle technology has come a long way since the first inline-six diesel was shoehorned into an '85 Dodge Ram D350. The '14 model year marks the 25th anniversary of when the first Cummins-powered Ram was offered to the public in 1989.

Correspondence between Chrysler and Cummins began as early as 1983. In 1984, Cummins delivered a nonworking mock-up engine to Chrysler for its engineers to test fit, and shortly thereafter, the truck now known as D001 arrived in Columbus, Indiana, for Cummins to install a running version

of its 6BT engine. Fitting the diesel engine was no small task. The radiator had to be moved forward 4 inches, the fuel system was completely changed, a stronger drivetrain was installed to handle the increased torque, a heavier front suspension was put in place to support the added weight, and the list goes on. Cummins had the first of the original six prototypes repowered by May 1985 and five of the six running by October.

Unlike many of today's prototype vehicles, which are often sent off to an untimely end at the hands of a crusher, the D001, and many of the other original mules, lived on long after their projects had concluded. For more than 20 years, D001 was

used as a parts runner among Cummins facilities and as a shop truck for the Cummins Technical Center. Most of its life has been spent roaming the highways in and around Columbus. While a few of the original six mules have left the company through various means (a couple of the trucks were sold and one was stolen), the original has remained.

After sitting idle in the courtyard of a Cummins facility, the decision was made in 2012 to restore D001 to better-than-new condition with a full, frame-off restoration. When the Cummins restoration team first met, it had been more than five years since the original development truck had ran. A new battery was installed, and with the tank full of old diesel fuel, the truck fired on command, true to form for a first-gen. The decision was made early on not to touch the internals of the engine, only to clean and dress the exterior with new paint and accessories.

Cummins employees Thomas Sallee and William Crawhorn completed the major-



With the body back on the frame, the interior was pieced back together, starting with the heater and air conditioning. The door panels were all repainted, new carpet was installed, and the bench seat and headliner were reupholstered. When finished, the interior was returned to like-new condition.



While not the original prototype engine (at least two were removed for various reasons early in testing), what is seen in the truck today is still of 1985-vintage. The restoration crew decided to leave the engine's internal parts alone (as it was running fine) and instead focused on cleaning up the exterior. The block received a fresh coat of paint and new accessories, such as an alternator, A/C pump, and starter.



THE LITTLE RED-AND-WHITE PICKUP CAN STILL BURN RUBBER WITH THE BEST OF THEM.

ity of the restoration. Jared Combs, Joshua Barringer, and Dale Wemmer also pitched in at various times throughout the project. To restore the body and interior, these guys spent countless hours tearing the truck down to the frame, which was then sandblasted, primed, and painted. Next, the suspension and steering were completely rebuilt, and the cleaned-up engine and transmission were dropped into the frame. While the chassis and drivetrain work were underway, the cab and bed were also being restored to mint condition.

As the project progressed, the cab was placed on the completed chassis, and the dash, heating, and cooling components were attached. Body and paint work were

completed by Rich Ferrenberg; the headliner and bench seat were upholstered by Kelley's Auto Interiors; and Dennis Barnett of Classic Molding Restoration cleaned and polished the original exterior trim pieces and hub caps. After a year of hard work, the fully restored '85 Dodge Ram D350 Prospector made its public debut in June 2013 at the Turbo Diesel Register's annual rally.

Driving this beauty is like taking a step back in time. And with less than 500 miles on its odometer since the restoration was completed, we were very fortunate to be given a chance to get behind the wheel. When the production turbodiesel Ram made its public debut in 1989, the engine's performance rating was a then-impressive 160 hp with

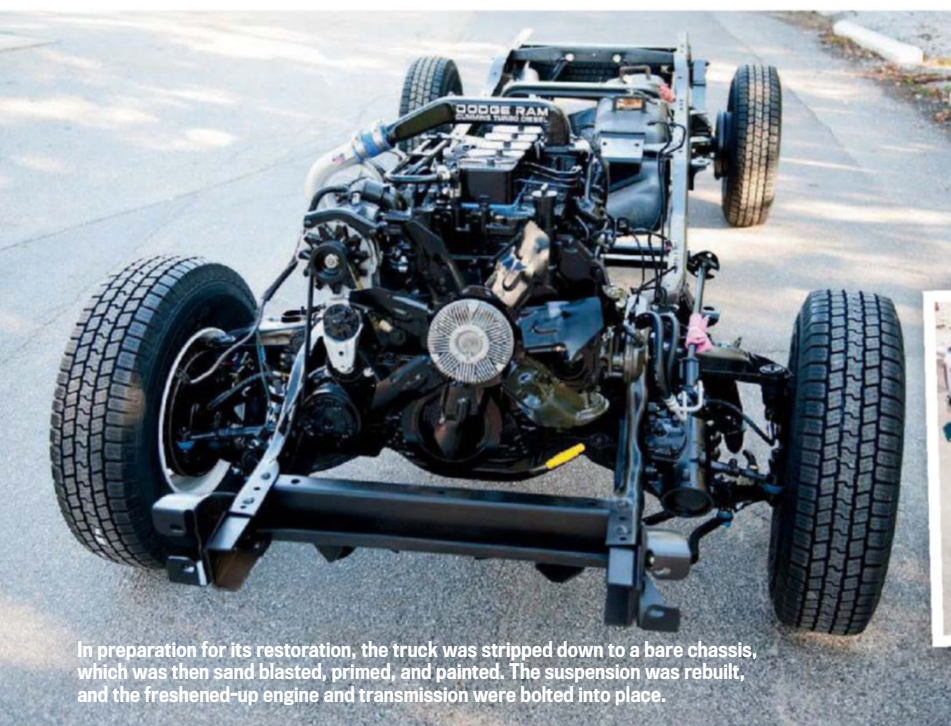
The rear axle on D001 still sports the copper cooling coil used during the truck's extensive dyno testing.

400 lb-ft of torque—less than half of what the output for a Cummins-powered Ram is now, 25 years later. Despite this fact, the little red-and-white pickup gets out of its own way in a decent hurry and can still burn rubber with the best of them.

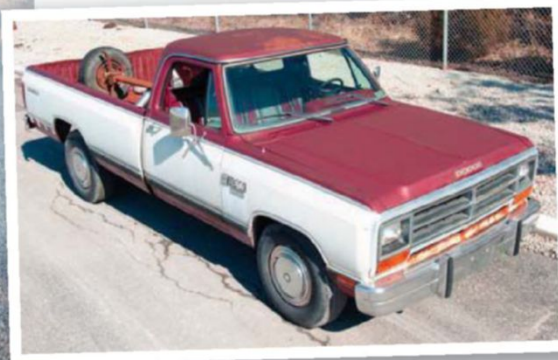
The engine is a bit louder and less refined than its younger brethren, but that's what we love about 12-valves. Going down the road, we noticed the front suspension seemed a bit soft, just how people liked it in the '80s. Overall, there's not a single thing we dislike about this wonderful truck, and the most difficult part of all was giving the keys back to its rightful owner.

At the end of the day, it's quite refreshing to know there is a company out there that takes pride in its history. Cummins' restoration of D001 shows it not only cares about its past as a company but also the relationship it has built over the past 30 years with Chrysler and Ram. Cummins can be proud of the care that went into the restoration of this important artifact. This truck was the genesis of the Cummins-Chrysler partnership and truly is a living legend. **TT**

Before the restoration began in 2012, D001's red-and-white paint had faded, the interior was worn, and the bed had taken a beating. Despite its rough outward appearance, the truck still ran as well as it did in 1985.



In preparation for its restoration, the truck was stripped down to a bare chassis, which was then sand blasted, primed, and painted. The suspension was rebuilt, and the freshened-up engine and transmission were bolted into place.



MICRO MACHINE

CAN FORD'S
SMALLEST TRUCK
ENGINE CUT IT?

By **Edward A. Sanchez**



W

hen it was officially announced that the '15 Ford F-150 would be getting an optional 2.7L

EcoBoost V-6, the truck enthusiast community almost immediately started raising concerns and, less charitably, casting aspersions on Ford's smallest-displacement truck engine. Would it be powerful enough for a fullsize truck? Would it feel taxed under load? Could a sub-3.0L engine work in a vehicle as large and heavy as the F-150?

Smooth Operator

After having driven more than 60 miles in a prototype '15 F-150 2.7L EcoBoost, we can safely say any concerns about power, at least when unloaded, are put to rest. The engine feels every bit as powerful as its 325 hp and 375 lb-ft of torque would suggest. In terms of the engine's other presumed trump card, fuel economy, we're going to have to hedge and categorize our initial findings as inconclusive on this pre-production model.

In terms of refinement, the 2.7L is easily as good as or better than the 3.5L, at least as

installed in the last-generation truck. Idle is nearly silent, and even under fairly aggressive throttle, only a muted growl comes through the firewall and from the exhaust.

The 2.7L EcoBoost is the first, and so far only, engine offered in the F-150 that comes with auto stop-start. We've experienced multiple variations of this technology in different vehicles, with some systems that work well and are fairly unobtrusive and others that are a bit more jarring. This is one of the better ones. It's not quite as fast as the system on the Ford Fusion, but it restarts

Despite its chunky, square styling, the '15 F-150 is the most aerodynamic in the model's history.





The 2.7L EcoBoost is the smallest-displacement engine in a fullsize truck in at least the last three decades.

quickly enough where it won't leave you flat-footed at a stoplight. The feature can be disabled by pushing a button on the dashboard.

Un-“Canny” Solidity

What we were most curious about with the new F-150 was its subjective feel, having an all-aluminum body. Would it feel “tinny” or insubstantial? Actually, it's quite the opposite. It felt very solid, with little to none of the secondary vibration that's usually endemic to body-on-frame trucks. Speaking of frames, the F-150's is still fully boxed steel, and we suspect it's a big contributor to the truck's feeling of solidity.

Aside from the new engine, the new F-150 feels tighter and rides quieter than its predecessor. Our top-secret tester truck was a bread-and-butter XLT model, missing many of the bells and whistles of the more upscale Platinum, Limited, and King Ranch trims, so any judgment on opulence or luxury will have to wait for a test of those better-equipped models.

Economy? Ask Again Later...

Official fuel economy figures for the 2015 F-150 in any form have not yet been announced. The 2.7L promises to be the economy champ of the lineup, so we wanted to take some informal preliminary measurements of its frugality to see if it could legitimately rival the current reigning economy champ, the Ram 1500 EcoDiesel. We have to add a few caveats on our results. The prototype truck had less than 100 miles on the odometer when we picked it up, and it was one of the largest, heaviest configurations of the F-150, being a SuperCrew 4x4. The area we test drove it was also quite hilly, which also likely impacted fuel consumption.

We drove the truck at what we'd consider a “normal” pace of highway driving of between 60-75 mph, punctuated occasionally by passing. After about an hour and a half of driving, we got an indicated and measured 16.7 mpg, based on an after-drive refill measured against the trip odometer. There were other variables aside from topography that affected

that figure, including a temperature in the mid 80s and running the air conditioning for most of the drive. We look forward to doing a more scientific and representative test of the 2.7L EcoBoost's fuel economy in the near future.

Speaking of air conditioning, that's another function affected by the auto stop-start. Since the compressor is still engine-driven, it stops when the engine does, but the system also automatically slows the blower fan speed as well. We're not sure what all the operational parameters are for the stop-start system, but we're sure the true test of it would be in suffocatingly humid Houston or sun-baked Phoenix. In 90-plus temps, we might just be tempted to disable it to keep the compressor cooling.

Like most current fullsize crew cab trucks, the rear seat of the SuperCrew has stretch-out legroom, even for nearly 6-footers. The rear of the center console on our XLT trim level had dual HVAC vents and both a 12-volt and 110-volt three-prong AC outlet.

There were also multiple USB inputs for the infotainment system in the front part of the cab. Like most of its other newer or recently updated models, interior lighting is predominantly LED, a further nod to efficiency.

All things considered, we see no reason why the F-150 won't continue to be America's best-selling truck. The '15 model builds on the strengths that have made it a best-seller and adds a new measure of technology, sophistication, and efficiency. It may seem exotic now, but we have a hunch that five years from now, you'll be seeing a lot more aluminum-bodied cars, trucks, and SUVs from other automakers as well. **TT**

2015 Ford F-150 SuperCrew XLT 4x4 2.7L EcoBoost

BASE PRICE: \$38,000 (est.)

VEHICLE LAYOUT: Front-engine, 4WD, 5-pass, 4-door truck

ENGINE: 2.7L DOHC 24-valve twin-turbo V-6

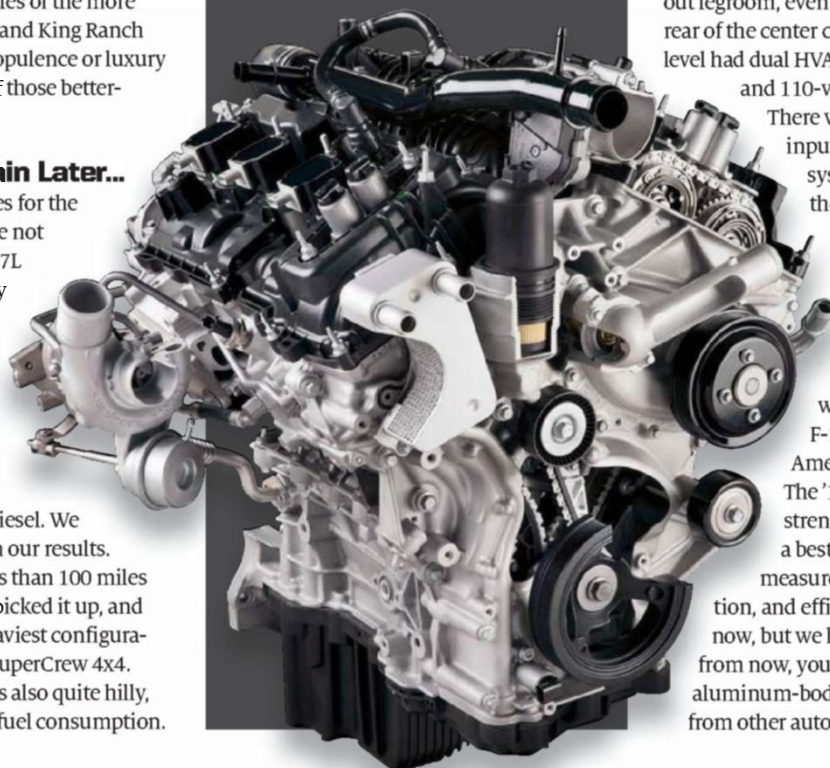
power
325 hp

torque
375 lb-ft

trans
6 speed auto

0-60 MPH: 7.5 sec (est.)

OBSERVED FUEL ECONOMY: 16.7 mpg



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INSTALLERS NATIONWIDE

Four-wheel drive has been part of the fullsize-truck culture nearly since the inception of the segment more than six decades ago. However, for most of that time, the purpose has been mostly utilitarian, helping the trucks get out of mud and muck, up steep trails, and adding traction in slippery terrain. It took OEs decades more until they fielded truck models that legitimately catered to the off-road enthusiast market. The Dodge Ram Power Wagon blazed the trail with the revival of the historic name in 2005 and continues to be the gold standard for the

traditional off-road fullsize truck. When the Ford F-150 SVT Raptor came onto the scene in 2010, it re-defined expectations for a factory off-road truck, with a custom front and rear suspension, Fox Racing bypass shocks at all four corners, and unique styling. The Raptor has been without a direct domestic competitor since its introduction. Thanks to the collaborative efforts of Lingenfelter Performance Engineering (LPE) and Southern Comfort Automotive, Chevy fans now have a credible rival to the Raptor with the Reaper off-road package, available through selected Chevrolet dealers.

Not Factory, But Turn-Key

Depending on your definition of "factory," some might not consider the Reaper a direct apples-to-apples competitor to the Raptor, since it doesn't technically roll off the line in Fort Wayne, Indiana, as-is. However, you can buy it through a Chevy dealer, including a supplemental warranty covering its custom parts.

Since we first saw photos of the Reaper earlier this year, our interest was piqued. LPE is a well-known and respected name in the General Motors performance world, and for good reason. The company has decades of

OUT FOR BLOOD



CHEVY'S RAPTOR RIVAL, FROM
AN UNEXPECTED SOURCE

By **Edward A. Sanchez**
Photos By **Edward A. Sanchez**



The time taken in tuning the Reaper's suspension is evident at the dunes.



WANT MORE REAPER ACTION?

Check out our Facebook page (facebook.com/TruckTrend) and Instagram channel (instagram.com/TruckTrend) for exclusive video of the Reaper in action, and be sure to visit the *Truck Trend* web site for an extended-length action video featuring GoPro footage of the truck at the dunes!



experience making Camaros, Firebirds, and Corvettes ludicrously fast, as well as having a reputation for rock-solid reliability. With fullsize truck sales near all-time highs, the company has lately diversified into the truck and SUV performance market, a natural extension, since the trucks' V-8s share much of their hardware with the Gen IV and V Corvette engines.

At first glance, it would be easy to dismiss the Reaper as just a bolt-on restyling package for the Silverado. While it's true that many of the items included in the Reaper package are cosmetic, the transformation goes far further than just skin deep. LPE Vice President of Operations Mike Copeland said an extensive amount of time was spent on tuning the custom remote-reservoir Fox Racing shocks on the Reaper, not coincidentally, the same supplier that builds the shocks for the Raptor. Ride Tech, a company with extensive experience building military-spec suspension components, supplies the front lower A-arms. LPE claims 9.2 inches of front, and 11.2 inches of rear suspension travel on the Reaper.

Ready to Rumble

The time invested in suspension research and development shows when driving the Reaper off-road in sand. The truck handled the whoops of the West Michigan dunes with poise and confidence, only rarely maxing out



2014 Chevrolet Silverado High Country 4x4 Reaper

BASE PRICE: \$48,775

PRICE AS TESTED: \$72,000 (est.)

VEHICLE LAYOUT: Front-engine, 4WD, 5-pass, 4-door truck

ENGINE: 6.2L OHV 16-valve Supercharged V-8

power	torque	trans
550 hp	575 lb-ft	6 speed auto

CURB WEIGHT: 5800 lbs (est.)

WHEELBASE: 153 in

LENGTH X WIDTH X HEIGHT: 239.6 x 84.0 x 76 in

0-60 MPH: 5.3 sec (est.)

QUARTER MILE: 13.9 sec @ 100 mph (est.)

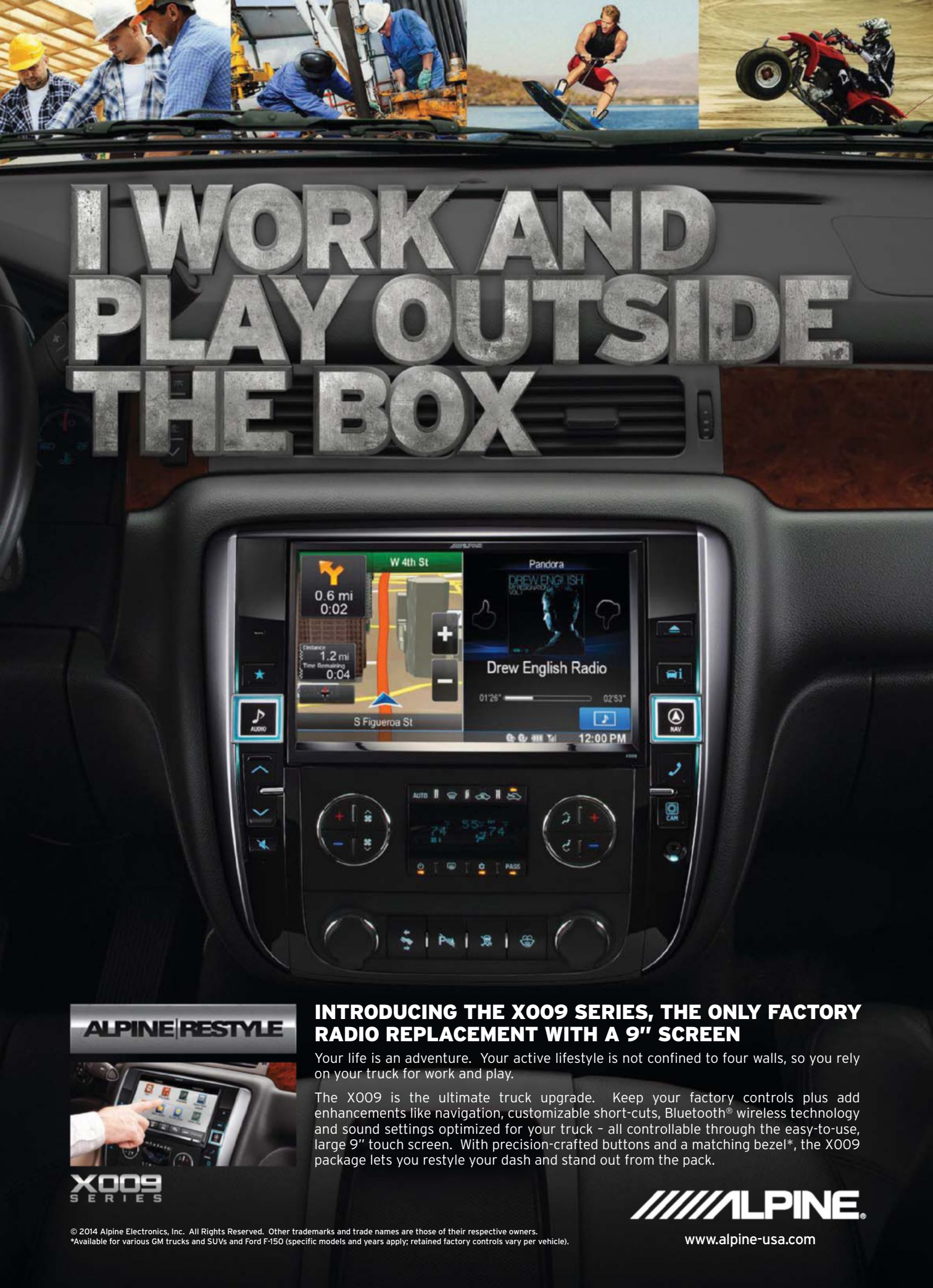
its wheel travel while driving at speed. And speed is definitely not a problem with either of the Reaper's two supercharged engines, available in 5.3L or 6.2L displacements. Even in "base" 5.3L form, the Reaper has a 64-horse edge over the factory Raptor and a decisive 139hp advantage with the 6.2L. Our truck

was equipped with the 6.2L engine and one of the louder exhausts we've heard in recent memory. Our particular tester had optional headers and exhaust tuned for a truck equipped with stock manifolds, making it especially boisterous.

The combination of the improved suspension and abundant power made for lots of fun driving at the Silver Lake, Michigan, sand dunes, and climbing the hill in the dunes recreational area was no sweat, with the supercharged L86's plentiful power and torque powering it uphill with ease. On-road, the supercharged V-8 propelled the Reaper up to triple-digit velocities with unnerving ease. If driven reasonably, Copeland said he's seen up to 17 mpg highway in the Reaper, impressive considering the amount of power, and the added drag from its higher stance and more aggressive styling.

Love It or Hate It, You Can't Ignore It

If you're a die-hard Chevy fan and want a truck that can legitimately hang and perform with your buddy's Raptor, the Reaper is a solid effort that won't disappoint. It doesn't come cheap, but exclusivity has its price. LPE says it will build as many Reapers as there's demand for, but it will be a long time, if ever, before Reapers become as common as Raptors, which have been out for four years now. **TT**



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*Available for various GM trucks and SUVs and Ford F-150 (specific models and years apply; retained factory controls vary per vehicle).

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The Ram ProMaster City is based on the European-market Fiat Doblo but with some significant changes for the U.S. market.



By Edward A. Sanchez

DOBLO PLAY



RAM'S SMALL BUT SIGNIFICANT SECOND ADDITION TO ITS U.S. VAN LINEUP

The truck and utility vehicle segment, broadly defined, has gone through something of a renaissance over the last several years. Once a neglected backwater updated roughly once a decade, it's suddenly bursting with innovation in every shape, size, and price point. The latest example is the '15 Ram ProMaster City. Just a few years ago, the compact cargo van niche would have been considered a "white space"

segment in the U.S. Ford was first out with the Transit Connect in 2009, followed more recently by the Nissan NV200, to which Ford has countered with a second-generation model. Now, there's a third competitor in the segment.

So what is the ProMaster City exactly? Essentially a Fiat Doblo heavily revised for the U.S. market. Whereas the majority of Doblo models sold in Europe are diesel powered with manual transmissions, the U.S.-spec

Unlike the Euro-market Doblo, the ProMaster City will be offered only with Chrysler's new 9-speed automatic transmission. Materials and design were improved from the Doblo's basic, utilitarian interior to meet U.S. customers' expectations.

ProMaster City will come with one powertrain choice at launch: Chrysler's TigerShark 2.4L I-4 mated to the 948TE nine-speed automatic transmission. In this application, the engine is rated at 178 hp and 174 lb-ft of torque, giving the ProMaster City a claimed 0-30 time of 3.7 seconds and 0-60 time of 9.8 seconds. The powertrain will be covered by a 5-year, 100,000-mile warranty.

While the Doblo is offered in a dizzying array of different powertrains, wheelbases,

and heights in Europe, the U.S.-spec ProMaster City will be offered in one roof height and one length, riding on a 122.4-inch wheelbase, offering a cargo volume of 131.7 cubic feet—barely besting the Transit Connect's 130.7 but offering a noteworthy advantage over the NV200's 122.7 cubic feet max volume. Among its current compact cargo van competitors, the ProMaster City is unique in employing a fully independent rear suspension, compared to the Transit Connect's torsion beam and the NV200's leaf spring designs.

Although the ProMaster City's footprint is predefined, that doesn't mean configuration options are limited. It will be offered in a full-cargo version with two seats, available with or without side windows, and also in a two-row,

2015 Ram ProMaster City

BASE PRICE: \$22,000 (est.)

VEHICLE LAYOUT:

Front-engine, FWD, 2-5-pass, 4-door Van

ENGINE: 2.4L SOHC 16-valve I-4

power	torque	trans
178 hp	174 lb-ft	9 speed auto

CURB WEIGHT: 3,600 lbs (est.)

WHEELBASE: 122.2 in

LENGTH X WIDTH X HEIGHT: 186.6 x 72.1 x 74.0 in (est.)

PAYLOAD CAPACITY: 1,883 lbs

TOWING CAPACITY: 2,000 lbs (est.)

EPA CITY/HWY FUEL ECON: 21/30-24 mpg (est.)

ON SALE IN U.S.: 4th Quarter 2014/1st Quarter 2015



The ProMaster City will be offered in both full-cargo, and cargo/passenger configurations with seating for up to five.

five-passenger "wagon" version that seems like it would make a good taxi or a practical gear/family hauler for the active mom or dad. A three-row, seven-passenger version will not be offered initially, with Chrysler happy to get you into one of its Town & Country or Grand Caravans instead.

As of now, it's unknown whether the ProMaster City will fully replace the Grand Caravan-based Ram C/V, with that van offering a slightly larger cargo volume, as well as being able to swallow a full 4x8-foot sheet of plywood, compared to the ProMaster City's slightly short 87.2-inch maximum length. However, with Chrysler's announcement that the Grand Caravan will soon be discontinued with the Chrysler brand's Town & Country being the company's minivan standard-bearer, there's a good chance the ProMaster City will ultimately replace the Ram C/V sooner, if not later, with those needing greater capacity moved into a low-roof, short-wheel-base ProMaster. Interestingly, the ProMaster City's maximum payload rating of 1,883 pounds slightly surpasses the Ram C/V's rating of 1,800. Like the fullsize ProMaster, the ProMaster City offers dual swing-out rear doors with 90 or 180-degree angles, allowing for forklift loading.

The one other thing the ProMaster City shares with its European cousin is its assembly line in Bursa, Turkey. To avoid the dreaded and dated "chicken tax," passenger models are modified on the dock in Baltimore, Maryland, for commercial duty. Expect the ProMaster City to start rolling into U.S. dealerships in late 2014, with larger-scale availability starting in the first quarter of 2015. **TT**



ABOVE: The rear cargo doors have dual-mode hinges to allow for 90 or 180-degree opening.

LEFT: The ProMaster City is offered with a variety of rear glass configurations, ranging from full-sheetmetal to full-glass.

OPPOSITE LEFT: The standard, and initially only, engine offered with the ProMaster City will be Chrysler's TigerShark 2.4L I-4 producing 178 hp and 174 lb-ft of torque.



BACK IN THE GAME

GM RETURNS TO THE MIDSIZE MARKET

By **Jason Gonderman**

They are two of the most anticipated new trucks of the year, and they are finally here. We recently had the opportunity to get behind the wheel of the '15 Chevrolet Colorado and '15 GMC Canyon, and all we have to say is GM has hit it out of the park once again.

The original Colorado and Canyon were introduced in 2004 as a replacement for the outgoing S-10 platform and lived on until 2012. GM's truck lineup was left void of a midsize offering for three years, during which Ford and Ram both exited the game as well, leaving only the Nissan Frontier and Toyota Tacoma to fill the space.

With their eyes set on the future, while learning from the past, GM set out to build a class-leading midsize pickup yet again. Starting from the ground up, the Colorado and Canyon are brand-new vehicles and carry

many of the features that their older ½- and ¾-ton brethren have been known for, such as a fully boxed frame, fuel efficient engines, and an extremely quiet and comfortable cabin space. Recently, GM invited us out to San Diego, California, to drive their new baby and handed us keys to practically every different shape, size, and color offered.

From the outside, the Colorado and Canyon appear different, thanks to their





The GMC Canyon can be optioned with the most luxurious interior available in the midsize pickup segment. Soft-touch material, premium leather, live (real) stitching, and real aluminum are used throughout.

distinct front clip. However, under the skin, they are mechanically identical. We bring that up to preface the fact that both trucks drive the same, so we won't be differentiating between the two. The first thing that we picked up on once behind the wheel was how small the truck felt. On paper they aren't much different than a previous generation 1/2-ton, but driving them we noticed that they have the maneuverability of a much smaller pickup. Power and responsiveness was great from both available engines. The V-6 has enough power to tackle any task or load you might throw at it, and the four-cylinder was a real treat to drive, never once leaving us wishing for more in normal, unloaded, city, and highway driving.

Inside the cabin, we found ourselves starting at the same style of instrument panel and center stack as the larger fullsize trucks. Both trucks come loaded with tons of available technology, including an available 8-inch touchscreen display, Bluetooth, Siri Eyes Free, 4G LTE WiFi, OnStar, and lane departure warning, just to name a few. Interior appointments range from simple cloth seats in the base model, up to the rich leather you would expect to find in a Cadillac. Interior space is

great and doesn't by any means feel cramped. That is, of course, unless you're a fullsize adult attempting to sit in the back of the extended cab, then things get a bit tight.

Speaking of space, the trucks are available with two cab and two bed options. There's an extended cab and Crew Cab, along with 5-foot 2-inch and 6-foot 2-inch beds. Extended cab models are only available with the 6-foot 2-inch box, while Crew Cab models get either. Each of the beds are equipped to accept GM's new GearOn accessory system and feature two-tier loading, four permanent tie-down locations, 13 additional adjustable cargo tie-

down locations, and utility rack stanchions. The EZ Lift and Lower tailgate is both lockable and removable; a factory spray-in bedliner is optional; and the CornerStep rear bumper makes getting into the cargo box a breeze.

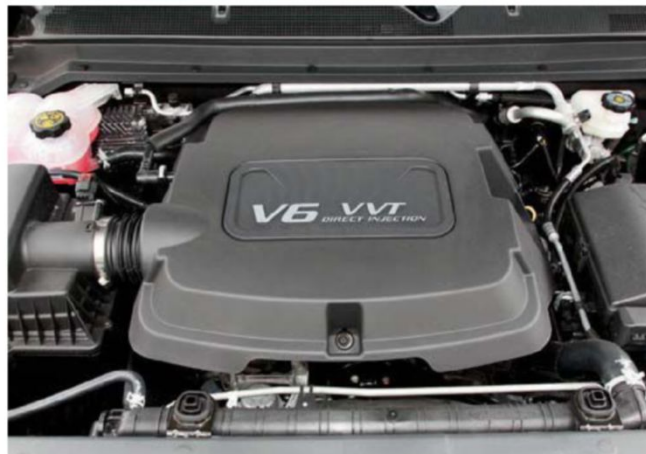
Overall, we are extremely pleased with the new '15 Colorado and Canyon. Our time with the trucks was quick but quality. We were never once left looking for or wanting more. The trucks met or beat our expectations time and time again. These are the trucks that the midsize buyer has been waiting for, and we can't wait to spend time in one again in the future. **TT**



Extended-cab models come equipped with a 6 foot 2 inch bed.



When equipped with the 3.6L engine and Z82 trailering package, both Colorado and Canyon are rated to tow 7,000 pounds. The truck barely broke a sweat when hitched to a pair of jet skis, making it perfect for people who occasionally tow a boat, motorcycles, or UTVs.



The high-volume powerplant is the 3.6L V-6. It's equipped with variable valve timing (VVT), a dual overhead-cam valvetrain, high-pressure direct fuel injection, and an aluminum cylinder block and head. All of this combines for an impressive 305 hp and 269 lb-ft of torque

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170 AMP MIG/FLUX WIRE WELDER

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\$199.99

REG. PRICE \$299.99

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LOT NO. 68885 61888

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SUPER COUPON

704 lb. Capacity

US GENERAL

30", 5 DRAWER TOOL CART

LOT NO. 95272 69397 61427

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5400 lb. Capacity

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SUPER COUPON

3-1/2 Pumps Lifts Most Vehicles

Weights 56 lbs.

PITTSBURGH

RAPID PUMP® 3 TON ALUMINUM RACING JACK

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LOT NO. 68052 61386/62248

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SAVE \$80

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SUPER COUPON

CENTRAL PNEUMATIC

3 GALLON 100 PSI OILLESS HOT DOG STYLE AIR COMPRESSOR

LOT NO. 97080/69269

Item 97080 shown

SAVE 50%

\$39.99

REG. PRICE \$79.99

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SUPER COUPON

PITTSBURGH TORQUE WRENCHES

Impressive Accuracy. Amazing Value!
- Car Craft Magazine

Item 239 shown

1/4" DRIVE
LOT NO. 2696/61277

3/8" DRIVE
LOT NO. 807/61276

1/2" DRIVE
LOT NO. 239/62431

YOUR CHOICE!

\$9.99

\$21.99

REG. PRICE \$29.99

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Accuracy within ±4%

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SUPER COUPON

PREDATOR GENERATORS

4000 PEAK/3200 RUNNING WATTS

6.5 HP (212 CC) GAS GENERATORS

Item 69729 shown

LOT NO. 69676/69729

LOT NO. 69675/69728 CALIFORNIA ONLY

SAVE \$200

\$299.99

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70 dB Noise Level

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Unlike most motorhomes, the ATW Alpha isn't built for leisurely cruising the interstates but built for exploring remote, rugged locations in comfort.

CIVILIZED EX



THE ALPHA EXPEDITIONARY VEHICLE

By **Lazelle Jones**
Photos By **Lazelle Jones**

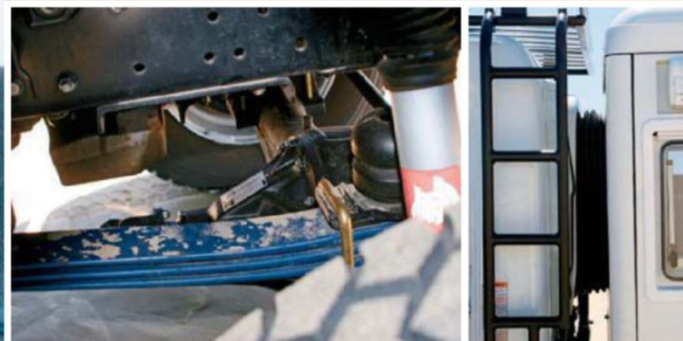
Having had an earlier look at their first expeditionary prototype (called the Bravo) more than a year ago and after hearing that giant steps had taken place in the development and engineering of the new Alpha (it has just gone into production), *Truck Trend* headed north to All Terrain Warriors USA factory in Fresno, California, for a look-see at what was going on.

Not letting any grass grow as this competitive market continues to

emerge, Alan Feld, President and CEO of All Terrain Warriors USA has partnered with All Terrain Warriors of Australia, and together they have launched the new Alpha model in both markets. Incorporating all of the functionality, livability, and technical lessons learned during the R&D of the first prototype, it can be said with certainty that "it is no longer necessary to spend a half million dollars on a vehicle to explore the four corners of the world" for the Alpha comes with a base suggested retail price of about \$245,000, depending on options.

The Alpha uses the standard (two-person cab) Fuso Chassis that features tilt-cab engine and transmission access. The cab and its seating are anything but Fuso factory appointed, for even though this chassis was developed by Mitsubishi for a world that demands rugged utility-truck platforms, the Alpha incorporates features that make this space a custom designed venue. The Alpha cockpit yields luxury and comfort, as well as excellence in ride. The driver and passenger seats can be air or mechanically suspended with a

EXPLORATION



Accommodations on the Alpha are snug, but functional, making the most of all available space.



"IT CAN CARRY 41 GALLONS OF DIESEL, WHICH GIVES IT A VERY RESPECTABLE RANGE BETWEEN FUEL STOPS."

custom-built center console that can include lighted drink holders, storage, and a safe.

The Alpha incorporates a pass-through that permits a fullsize individual to move back and forth between the cab and the living area that is attached to the chassis rails. Both a convenience and a plus when it comes to security while traveling and spending the night in parts unknown, the rear living area has seating for three passengers, and yes, the unit comfortably accommodates five for sleeping.

The rear box that house the living area is made of gel-coat fiberglass and is available in two different configurations. It can be enjoyed with a lift roof (electric motor operated) that has a road-ready exterior height of 103 inches. However, to enjoy the amenities

requires raising the roof via a control switch (it takes a matter of seconds) that then yields an interior height of 6 feet, 9 inches. The Alpha is also available with a solid roof that is structurally attached to the solid walls, with the overall exterior height (road-ready) being 130 inches while the interior height remains a constant 6 feet, 4 inches.

When the Fuso chassis is received at All Terrain Warriors USA, it arrives with the chassis rails, cab, and the drivetrain that includes a 3.0L I-4 Mercedes turbodiesel with a six-speed automatic transmission and factory four-wheel drive. The dual rear wheels that are Mitsubishi-standard on this chassis are not used. Instead, they are replaced with larger single rear wheels (10x19.5), which are important for an expeditionary type vehicle of

this kind. Single rear wheels follow the exact track the front wheels have already plowed in soft surfaces like snow or mud. With dual rear wheels, plowing a new path is required. Furthermore, the potential for a boulder or rock becoming wedged between two tires and cutting down the sidewalls on both tires or sling-shotting the rock and doing damage to the vehicle or something exterior to the vehicle is not there. Two spare tires are hung off the rear of the unit, and because of their size and weight (each at 176 pounds), a standard rear 16,000-pound electric winch assists in lowering and raising the spare tires from and to their stowed locations.

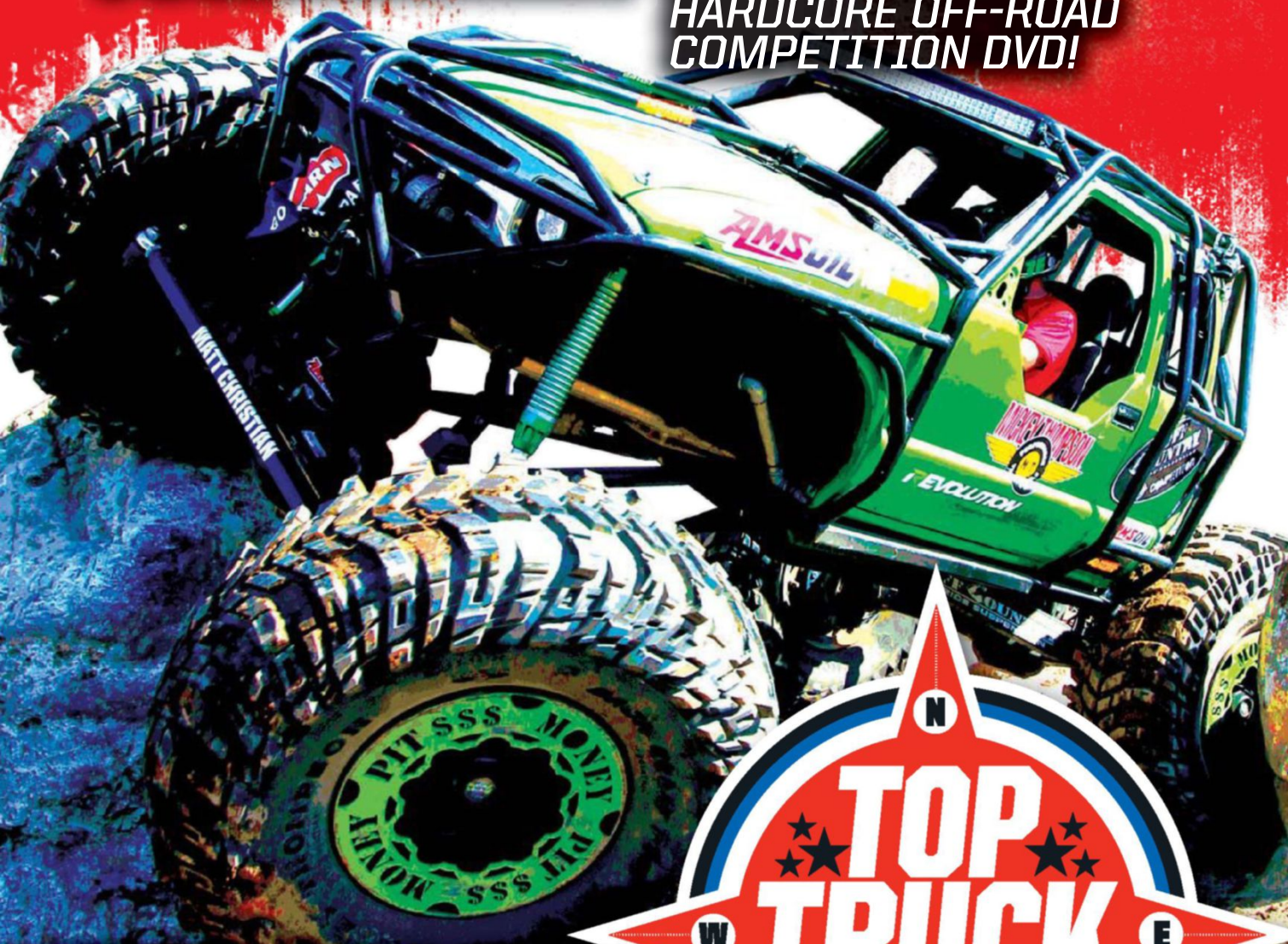
The fuel economy on this 14,050-pound GVWR expeditionary vehicle is respectable. With a dry weight of approximately 11,952 pounds, the cargo carrying capacity is huge. The unit that Alan Feld takes to shows like the Overland Expo in Arizona and out to Moab to the mountains of Colorado, had at the time an average fuel economy of 17.3 mpg. It can carry 41 gallons of diesel, which gives it a very respectable range between fuel stops. Additional cans of fuel can be carried on the cab roof rack.

With its 19.5-inch wheels, clearance from the axle housing/transfer case to the ground is 10.5 inches. Exterior width is 86 inches, and front to rear, it measures 22.5 feet. Equipped with a Class V receiver hitch, the Alpha is rated to tow 4,000 pounds above and beyond its GVWR. The options are nearly endless, which means the Alpha can be tailored to the specific requirements of each client. **TT**

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THE VALLEY CALLED "DEATH" COMES ALIVE

2014 DEATH VALLEY JEEP JAMBOREE

By **Sue Mead** • Photos By **Sue Mead**

IMorning light illuminated the strange moonscapes of Death Valley as our snaking line of Jeep vehicles crested the Panamint Range. Below, in a palette of pastels, was a swath of the nation's largest park outside of Alaska. The series of tight and twisty turns designed to slow our steep descent made it easy going, especially when I geared down my Jeep Wrangler, but a series of questions quickly popped into my mind. In what fashion did early travelers to this land slow their Conestoga wagons and mule teams? How did they manage to be self-sufficient in this severe terrain and harsh climate that drew the moniker that was, unfortunately, aptly named for many explorers—Death Valley? And what would the early prospectors who carved tracks with their wooden wagon wheels and dug deep into the earth with their shovels have thought of our multi-horse-powered rigs, with all the amenities one could ask for in a modern-day Jeep? For us, Death Valley is a place for a different type of exploration and mining—with hundreds of miles of dirt roads and backcountry trails, it's a place for motoring in 4x4 vehicles and mining for beauty.

Death Valley received its English name during the California Gold Rush in 1849, as prospectors and others crossed this immense valley making their way to the gold fields; although only one death was recorded in the region during the Rush. In the 1850s, miners found gold and silver, and in the 1880s, borax was discovered and hauled out by mule-drawn wagons. Today, Death Valley is a unit of the Mojave and Colorado Deserts Biosphere Reserve that





Death Valley received its name in the mid-19th century, although only one actual death was officially recorded from that era.



I WAS REALLY STRUCK BY THE POWER OF THE LANDSCAPE, AND LIKE A VAST OCEAN, IT CAN CHANGE IN A MOMENT."

boasts over 900 types of plants with over 94 percent of its acreage designated as a wilderness area. Although lower, hotter, and drier than any other region in the U.S., temperatures are usually pleasant and welcoming, with the exception of summer when they often exceed 120 degrees (the hottest temperature recorded was 134.6 degrees). Despite the heat and aridity (annual precipitation is a little over 2 inches), there are many species of vegetation, birds, and mammals that live in the valley throughout the year, and it has become a popular tourist destination.

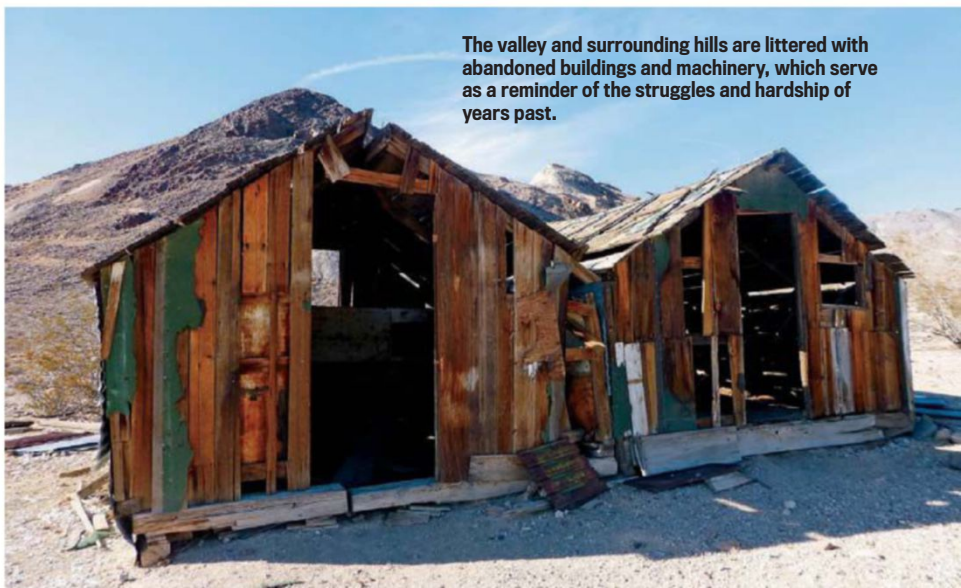
The Death Valley Exploration is held in December, when this barren and beautiful region enjoys a more amiable climate. The three-day trip was planned to explore the back roads and old mining towns of Death Valley, with Mark Smith and his longtime family friend, Perry King. King, who is well known as a movie, television, and Broadway actor, has spent years studying the hidden riches of Death Valley. An avid fan of four wheeling, King's familiarity with the region led him to design an itinerary that began on night one at the Lone Pine Film History Museum, with a tour and a trip out to nearby filming locations. Days two and three set a course through the tiny ghost towns of Darwin and Rhyolite (known for its Bottle House and used by film production companies for its distinctive scenery), the small, rustic, western-styled

resort of Panamint Springs, the colorful rock formations of Artist's Palette in Titus Canyon, Ubehebe Crater, and a history tour of Scotty's Castle, a Mission and Spanish Colonial revival-styled villa that illuminates life in the life and times of the Roaring 20's. Overnight accommodations at Stove Pipe Wells and Furnace Creek Ranch enriched the valley's history even further.

"Death Valley was a perfect location for a Special Event Jeep Jamboree," said Glenda Gau, trip organizer and adventure consultant for Jeep Jamboree USA. "I was really struck by the power of the landscape, and like a vast ocean, it can change in a moment. It was not a typical off-road trip, because a lot of trails were closed in Death Valley because of flood-

ing last summer, but seeing the grandeur, and experiencing the camaraderie and fun was like all our Jamborees. Plus, it was a great leisurely trip listening to Perry King share his knowledge of the Valley and his experiences there over the past 25 years."

Following King's lead, we spent two days exploring snaking canyons and ascending to elevated vantages that take in the panorama of desert playa or saline lakes, the most level of all the earth's topographical surfaces. In one view we could see the valley, one of the lowest points on this hemisphere, and at the same time, some of the tallest mountains in the lower 48 states, including the snow-capped 11,049-foot Telescope Peak of the Panamint Range. Among the trip's highlights



The valley and surrounding hills are littered with abandoned buildings and machinery, which serve as a reminder of the struggles and hardship of years past.

Today, Death Valley is a popular recreational destination for off-road enthusiasts and tourists. But for early explorers to the area, its rugged terrain and extreme heat made for tough travels.



was Badwater, located 282 feet below sea level—part of the 550 miles of the valley's floor that lies below sea level. Here, light reflects in the saline pools, which support a subtle ecosystem including brine shrimp and the Badwater Snail, whose shell is measured in millimeters.

"I have been an off-road enthusiast all of my life," said King. "In the late eighties, I was working on Broadway, and I was dying to get out of the city, when I saw a story on the Goler Wash in Death Valley. I was fascinated and dreamed about driving it. I did, and I was hooked. I love its wildness, macabre, the danger and the stories. You can see the geology of the planet from millions of years ago—events from millions of years ago writ-

ten in the rock—and the colors. That's why the miners loved it."

For King, the book "Death Valley in '49," written in 1900 by the man who saved the 49-ers, tells a tale that illuminates the legend and lore of Death Valley. "He was a real hero. He walked three times from Death Valley to Los Angeles (then just a small rancho) to save the 49-ers! He describes the place in detail. But of course, there were then no place names. It's so much fun to read it and figure where he's talking about. The travails were incredible—almost each day they would come right up to the edge of death by thirst and then find some tiny pool of water or something," said King.

For Roy Elfers and his wife, Patti (PJ) McCabe, of Wading River, New York, the

trip was their 5th Jeep Jamboree, although the couple have been on countless wheeling events hosted by various off road clubs on the East Coast. The couple say they have owned so many Jeep vehicles over the years that it's "almost too many to recall, but a quick estimate includes at least three CJ-7s, five YJs, and currently an '06 LJ Rubicon.

"Upon reflection of the Death Valley Jeep Jamboree, being able to not just meet and shake hands with Mark Smith, and Perry King was incredible, but also to sit, have conversations, dine, travel, and explore with all was beyond anything I had anticipated. The dynamics of the group was phenomenal. Perry is an amazing storyteller who is just another gearhead like most of us, and Mark Smith's quick sense of humor was great! I can honestly say it was an adventure that Patti and I will never forget!." **TT**



THE GARAGE

» ON THIS PAGE **LONG-TERM TEST FLEET**
HELLO JEEP GRAND CHEROKEE, GOODBYE NISSAN NV200

SHOP CLASS P72
FUEL PROPERTIES



ARRIVAL



SEAN P. HOLMAN

2014 JEEP GRAND CHEROKEE OVERLAND ECODIESEL

By Sean P. Holman

» After a four-year hiatus, the return of a diesel engine in the freshened '14 Jeep Grand Cherokee has been one of the most talked-about subjects in the past year. As curious as you are about life with this new clean-diesel SUV, we got our hands on an EcoDiesel-equipped Grand for a long-term test.

Starting with a base price of \$46,195 for our four-wheel drive Overland trim level model in Billet Silver, we added the Advance Technology Group (\$1,995), Off-Road Adventure II package (\$1,095), and of course, the 3.0L EcoDiesel powertrain (\$4,500), for a grand total of \$54,780 when you factor in the destination charge of \$995. For comparison, the 360hp and 390-lb-ft 5.7L Hemi V-8 commands a \$3,195 premium, only \$1,305 less than the more fuel-efficient

diesel, which makes the EcoDiesel seem like a bargain to us.

The 3.0L DOHC V-6, sourced from Italian diesel-engine specialist VM Motori, puts out a respectable 240 hp and 420 lb-ft of twist. The EcoDiesel is paired with ZF's excellent 8HP70 8-speed automatic transmission, operated by what can best be described as a recalcitrant joystick. We much prefer the positive selection of the dial that operates the same transmission in the Ram 1500.

Powertrain changes aside, the Grand also received a revamped interior for 2014, with a new center stack, instrument cluster with a Driver Information Center (DIC), and new color options. The highly configurable DIC now uses a computer-generated image of a speedometer (or alternately, a readout of speed) in the instrument cluster, which mixes traditional physical gauges with a 7-inch TFT screen that can be configured to show all sorts of different data points about the vehicle's operation. Joining the interior updates are a freshened face and more chiseled rump with signature LED lighting, making the Grand instantly recognizable out on the road.

From the first push of the ignition button, the EcoDiesel fires up immediately and settles into a smooth idle. While not quite as smooth and isolated as its German diesel-powered



counterparts, the engine retains a slight mechanical growl that is a welcome reminder of what is under the hood. The 8-speed is responsive to throttle inputs, never really getting lost between the many gears and paddle shifters nestled behind the fat, wood-and-leather-rimmed steering wheel provide extra control at the fingertips. While the EcoDiesel is plenty powerful, there is a little bit of lag just off idle before the turbo gets spooled up.

Out on the open road, the Grand is quick and stable, steering is well weighted, and the suspension compliant. Around town, the ride is good, but lacks some refinement of other air-suspended SUVs, as some harshness and booming can be felt at the travel limits when traversing gutters, ditches, and bumps at speed.

During the first 5,000 miles, our Grand averaged 22.35 mpg in mixed driving, with a best highway tank of 27.48 mpg, nearing the EPA's highway rating of 28 mpg. That's significantly better than the 4x4 gas V-6 model at 24 mpg highway and especially the 4x4 5.7L Hemi V-8 at 20 mpg. Despite a tight engine, we still saw our best tank deliver a real-world range of 648 miles, not too far from the theoretical range of 688 miles.

With the same 7,200-pound towing capacity as the Hemi 4x4, but better fuel economy than the gas V-6, we love that the EcoDiesel delivers the best of both worlds on paper. However, with an increased price of admission over the gas models, will the extra fuel economy and diesel driving characteristics be enough to make the EcoDiesel a better choice in the real world? Well, time will tell, and we have an entire year to find out.



LOGBOOK QUOTES

"The Chrysler Group Uconnect system is the best in the biz, über functional, and super easy to use."

"Wasn't sure I'd like the virtual speedometer, but I've gotten used to it, and the function of the DIC is awesome."

"This shifter is going to take some getting used to; I always seem to end up in Reverse instead of Park or Drive."

LONG-TERM NUMBERS

Base Price: \$46,195
Price as Tested: \$54,780
Miles to Date: 5,185
Miles Since Last Report: First Report
Average MPG (this report): 22.35
Best Tank (mpg): 27.48
Worst Tank (mpg): 19.64
Test Maintenance: None
Test Problem Areas: None



PRE OWNED P42
'07-'13 CHEVROLET SILVERADO/GMC SIERRA

“AT SOME POINT, THERE’S GOING TO BE A DECISION REGARDING WHETHER TO BUY A GASOLINE OR A DIESEL VERSION.”

GEAR P42
COOL, NEW STUFF



LEGENDS P42
MERCEDES-BENZ UNIMOG



VERDICT



TOP: We optioned our tester with a cargo management system from upfitter Adrian Steel, which helped make the cargo area more useful for hauling small items. **ABOVE:** The NV200's 2.0L I-4 engine provided plenty of motivation, even when fully loaded.

2013 NISSAN NV200 SV

By **Melissa Spiering**

» We know it, and you (our readers) have expressed this to us many times: The Nissan NV200 won't win any beauty contests, it will never be the envy of your friends, and it's not a truck. For the past year, we've lived with this pint-sized cargo van as an alternative to the standard work truck, and it has proved to be an honest workhorse that we've grown to love.

Our NV200 had nearly all the bells and whistles to support a two-man band. Nissan

kept the options for the NV200 simple, making our nearly fully loaded van priced as tested at \$23,250. SV trim level came with heated exterior mirrors, six interior floor-mounted D-ring tie-downs, keyless entry, power door locks, and cruise control. To disguise the less-than-desirable plastic bumpers, we spec'd the van with the exterior appearance package (\$190) that included body-color front and rear bumpers, side mirrors, and door handles, alloy-looking



PROS & CONS

- **Upfitting and graphics incentive programs for qualified commercial owners**
- **Tight turning radius and narrow body for tight spaces**
- **122.7 cubic feet of cargo space**
- **Large doors on all sides**
- **Underpowered**
- **Poor cargo lighting**
- **185/60R15C 94/92T Euro-metric commercial tire on the NV200 is a dealer-only item**
- **Poor rear camera viewing angle**

LONG-TERM NUMBERS

Service Life: 13 mo/ 28,353 mi
Base Price: \$21,825
Options: Technology Package (\$950: navigation, backup camera, Bluetooth connectivity), Back Door Glass Package (\$190: rear door glass, rearview mirror), Exterior Appearance Package (\$190: wheel covers, body-colored exterior trim), all-season floor mats (\$95)
Price as Tested: \$23,250
Avg Econ: 23.1 mpg
Problem Areas: None
Maintenance Cost: \$214.80 (3-oil change, tire rotation, inspection)
Normal-Wear Cost: \$0
3-Year Residual Value*: \$11,160
Recalls: Battery fuse terminal wiring, passenger seat airbag sensor, steering column



wheel covers, and a chrome front grille. We also increased our visibility on the road with the back door glass package that included an interior rear view mirror (\$190). Lastly, we loaded the van with the factory-installed Technology package (\$950), which included NissanConnect Navigation with a 5.8-inch touch-screen monitor with a rearview camera.

For the most part, the NV200 was a respectable daily driver. The seats were comfortable, fuel economy was good, and the drivability was easy-going. Power delivered by the 131hp 2.0L I-4 engine and CVT is ample for its needs. At most legal speeds, the van's ride fared well, but anything over 75 mph became daunting and felt floaty, especially with an empty cargo bay. However, it felt like different beast once loaded—much more planted and connected to the road.

We put nearly 29,000 miles on our NV200, making three visits to the dealer for maintenance. Our first service was at 7,500 miles and included a multipoint inspection, oil change, and tire rotation, totaling \$63 for parts and labor with a coupon. Our second service at 15,000 miles included a multipoint inspection, oil change, and tire rotation, totaling \$95 without a coupon. The NV200's third service at the 22,500 miles was an oil change and tire rotation for a total of \$58. We also had two recall notices issued and fixed while the van in our care.

Overall, the Nissan NV200 delivered on its promise as a cargo van without breaking the bank.

*Automotive Lease Guide Data

Fuel Properties

THE DIFFERENCE BETWEEN DIESEL AND GASOLINE

Diesel and gasoline are two fuels sharing a common petroleum base but with significant differences in properties and use.

What's the historical perception when comparing the two?

Diesel fuel has been considered a dirty, grimy, industrial juice—an 18-wheeler trucking down the interstate, black soot bellowing out of its exhaust stacks, followed by the unmistakable clatter of diesel combustion. Gasoline was basically a carthing—a clean liquid going in, a relatively smooth/quiet burn, and still transparent gases exiting the tailpipe.

Let's look at the terminology. In 1892, German inventor Rudolf Diesel developed the compression-ignition engine. His idea was originally designed to burn coal dust, but this is where the concept of internal combustion without an ignition spark began, and as we know, this engine design is burning "Diesel" fuel globally today.

Gasoline's story is a bit different; commonly referred to as "gas," even though it's a liquid and originally an unwanted byproduct of kerosene production. The origin of the name is somewhat disputed, but here's a recent hypothesis. In 1862, an Englishman by the name of John Cassell marketed the product as a lighting oil, Cazeline—the "-eline" suffix Greek for (olive) oil. Over the years, it's evolved to the term Gazeline (trademark dispute), then the American translation to Gasoline. The same fuel is known as Petrol in the UK and most

commonwealth countries.

Both fuels are derived from petroleum, a fossil fuel formed deep beneath the Earth's surface, comprised of decomposed organic matter subject to intense heat and pressure over millions of years. The key ingredients in petroleum or crude oil are hydrocarbons (hydrogen and carbon), a prime source of energy when ignited and burned.

From Earth to Tank

The refining process is what makes it all work. In simplified way of explaining it, it's basically a matter of heating the crude oil to its boiling point where it vaporizes to a gas. The hot gasses rise up a distillation column. As the gasses cool, the different components of the crude oil condense at different temperatures. The condensed liquids are therefore extracted at various heights of the column. Gasoline is more volatile, meaning it has a lower boiling point and condenses close to the top of the distilla-

tion column. Diesel fuel forms about midway, and lubricating (motor) oil closer to the bottom. Keep in mind there are many other petroleum products extracted, followed by additional refinement of each once condensed and removed from the column as a liquid or maintained as a vapor.

More Miles

A big item on everyone's mind is fuel economy, and the word is out that diesel fuel most often gets better mpg than gasoline. The higher density (thickness) of diesel fuel's hydrocarbon strain allows it to produce more energy when burned (volumetric energy density). This can result in more than a 30 percent gain in fuel economy.

How It Works

Now the good stuff—engines. Both are of the four-stroke (four-cycle) design developed by German inventor Nikolaus August Otto. Each piston travels down on the intake stroke, up on compression, down on power, and up on exhaust. Intake and exhaust valves are opened and closed in time with piston travel to achieve a uniform flow of incoming air/fuel, compression, power, and outgoing exhaust gasses. Rudolf Diesel's invention was a refinement to the "Otto Cycle" engine.

The usable combustion (explosion) of gasoline and oxygen can occur at lower pressures than diesel fuel, so gasoline-burning engines use lower compression ratios and an ignition spark to ignite the air/fuel mixture. The mixture is pulled into the cylinder on the piston's downward intake stroke, compressed, and ignited by the sparkplug on the upward compression stroke. The combustion result then drives the piston downward on the power stroke, rotating the crankshaft and eventually the wheels.

There are no sparkplugs in a diesel engine, but we still need a source of ignition. This is where the much higher compression ratio comes into play. On the compression stroke of a compression-ignition engine, only air is being pressurized. Under this extreme pressure, the air heats up. At the very top of the compression stroke, diesel fuel is directly injected into the combustion chamber, where it's ignited by the high-pressure hot air. And bang (or knock), energy is produced.

Diesel engines are built heavier and stronger than their gas-burning siblings in order to withstand the excessive pressure needed for combustion. At the same time, due to the heavy-duty nature of the build, diesel engines tend to be more durable and hold up better over extensive mileage or run-time.

Seeing that gasoline needs to be pulled into the cylinder with the air on the piston's intake stroke, fuel has typically been introduced before the intake

**"THE KEY
INGREDIENTS IN
PETROLEUM OR
CRUDE OIL ARE
HYDROCARBONS"**





HEMI 5.7L V-8

valve, by means of a carburetor or fuel injectors mounted to an intake manifold. Meanwhile diesel engines use a mechanically driven injection pump to force high-pressure fuel through the injectors and directly into the combustion chamber.

Engineers are now taking advantage of the age-old direct-injection principle with gasoline engine production. It's been known for quite some time that direct-injection improves the combustion burn of gasoline, enhancing both power and fuel economy, but the cost factor of the entire system has kept it out of the equation, until recently.

More Power

Like miles per gallon, the range of power differs between the two fuels and engines. No, we're not going to conduct a physics class explaining the torque/horsepower relationship and formulas. But it's traditionally boiled down to vehicle use requiring extreme torque or not. Diesel engines produce high torque at low RPM. You can carry or tow heavy loads more easily, pull a tree trunk out of the ground—stuff like that. Gasoline engines don't compare in the low-end torque grading, but at high engine speeds, they're a work of art as horsepower peaks.

Diesel engines have been the workhorse, focusing on industrial, commercial, and mass transit use due to their ability to transport heavy loads efficiently. The user-friendly spark-ignition engines

“BY THE MID-70S, LEADED GASOLINE WAS PHASED OUT DUE TO ITS TOXIC EFFECT ON THE ENVIRONMENT AND CONTAMINATION OF CATALYTIC CONVERTERS.”

were predominantly used in passenger cars and light-duty trucks. Gasoline combustion was quiet, clean, and more adapt for high-speed travel carrying a minimal load. I'm going out on a limb and describing it as “power-agility.”

A Clean Burn

Gasoline has always included a variety of additives including detergents and stabilizers, but most notably agents to reduce engine knock. As gasoline engines were developed utilizing higher compression, knock would occur causing engine damage. Knocking or pinging means the air/fuel mixture ignites from pressure and heat outside the combustion event ignited by the spark plug. This clash produces a horrendous rattle and can burn a hole through a piston if left unchecked. In the 1920s, Tetraethyllead was added as an octane booster, and leaded gasoline came into being. Octane rating is a measurement of pressure fuel can withstand before igniting. Higher compression engines require a higher-octane fuel.

By the mid-70s, leaded gasoline was phased out due to its toxic effect on the environment and contamination of catalytic converters. Other

refining procedures and additives, including ethanol (alcohol), were eventually used as a replacement. We now find up to 10% ethanol (E10) in the majority of pump-gas sold in the United States. E15 is sold in some areas, applicable for vehicles built 2001 or newer, and E85 (85% ethanol/15% gasoline) is available for flex-fuel equipped vehicles. Ethanol, produced mostly from corn in the U.S., is seen as a form of relief from dependency on foreign oil. Folks who own any type of carbureted engine might disagree due to alcohol's corrosive effect, which clogs carburetor fuel jets in a short period of time.

Diesel fuel has cleaned up its act considerably with the introduction of Ultra-low-sulfur diesel (ULSD). ULSD has been predominately sold at U.S. retail stations since 2007. The lower sulfur content allows the use of advanced emissions control systems, which reduce oxides of nitrogen and particulate matter (soot). Diesel exhaust fluid (DEF) is a mixture of urea and water, which, when consumed by an exhaust catalyst, reduces NOx. DEF refilling is now a part of regular diesel engine maintenance. The diesel particulate filter (DPF) system catches soot and burns it to ash in an effort to drastically reduce the black cloud coming out the tailpipe but will also require periodic maintenance relevant to driving conditions to remove the built up ash content.

Decision, Decision

Diesel engines have always involved a very low-percentage of sales in the passenger car and light-duty truck markets, yet they are more common in Europe because of fewer environmental regulations. The introduction of the '14 Ram EcoDiesel ½-ton pickup may be a sign of things to come. Although diesels aren't as noisy, dirty, or emit vibration as in the past, the initial expense, additional maintenance, and cost of diesel fuel may still outweigh the advantage in fuel economy. We'll just have to wait and see if the previous collective opinion holds true: regular heavy cargo and/or tow load, buy a diesel; if not, don't.

Overall, the amount of power, increase in fuel economy, and reduced emissions that technology has squeezed out of both fuels and combustion processes over the past 30 years is impressive, to say the least. **TT**

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If you have a technical question regarding your pickup, SUV, or van, feel free to contact us! Send a letter care of *Truck Trend Shop Class*, 831 S. Douglas Street, El Segundo, CA 90245, or e-mail us at trucktrend@src.com. Due to the volume of questions received every month, we cannot guarantee that everyone's question will be personally answered or will appear in the magazine.

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Mercedes-Benz UNIMOG

The Mercedes-Benz Unimog is ingenuity on wheels. If there's terrain the Unimog can't tackle, then it's likely nothing else can, and it's time to call in the helicopters. Versions that don't have four-wheel drive deploy six-wheel drive instead. It works for various armed forces around the world but also helps civilians as a fire truck, snowplow, disaster aid vehicle, or safari bus. It's even been able to pull a freight train. There have been many versions, configurations, and engines throughout the Unimog's gloriously rugged career—some with 22 forward gears and 11 reverse gears—but the go-anywhere, do-anything principal has been a constant.

It's part Jeep, part tractor, part commercial vehicle, and designed with absolutely no regard for aesthetics, which means the Unimog has that peculiar beauty that only the purely functional can ever achieve. Its lofty ground clearance comes courtesy of portal axles, geared hubs that push the axle height above the wheels' centers—just like the Humvee. Modern Unimogs also have the ability to adjust tire pressures on the fly. And they can be converted, in the field, from left-hand to right-hand drive.

Unimogs have been used as support vehicles for racers in the Dakar Rally and occasionally won the truck class by default. It has never really won the hearts of Americans, though. Homegrown competition does certain jobs well, but can never be the single solution to multiple problems like the Unimog is. It's not surprising that Arnold Schwarzenegger owns one. The Marines and the Army own a few more.

Like many things, the Unimog was a response to necessity. After the Second World War, Germany's industrial base had been bombed to pieces or dismantled by the victorious allied forces. There was only one thing to do: go back to the land. The man with the Unimog vision was Albert Friedrich, a former engineer of Daimler-Benz aircraft engines, who understood that agriculture was essential for the recovery of his stricken fatherland.

West Germany, as it was known in late 1945, covered about 97,000 square miles, about the size of Oregon. So there was a lot of arable land that needed mechanical assistance to cultivate. Friedrich set about developing a tractor of sorts, with a frame construction, all-wheel drive, the same size of wheels at each corner, plenty of ground clearance, self-locking differentials front and rear, the ability to attach farm implements at various points, and a cab for two occupants.



Considering Friedrich was an engine man, he, or at least someone in his team, knocked the suspension setup out of the park. It's all down to the torque tubes. These contain the Unimog's driveshafts and connect its solid axles with the transmission. Throw in a flexible frame and coil springs at each corner, and the result is a comfortable ride with remarkable wheel travel, unencumbered by leaf springs or multi-link suspension parts. Torque tubes also prevent axle hop and wind-up.

By 1948, the Unimog had gained a Daimler-Benz diesel engine, and reactions were increasingly positive. Daimler-Benz took the Unimog to the next level in 1951, shifting production to a facility in Gaggenau, at the edge of the Black Forest and about 60 miles west of Stuttgart. The three-pointed star was affixed to the grilles from May 1953. Around 320,000 Unimogs were built in Gaggenau, until operations moved to Wörth am Rhein in 2002.

The Unimog phenomenon started with the U25, so called because its engine developed 25 hp. Made from 1955 to 1980, the Unimog S or 404 Series was a best seller. It enjoys a longer wheelbase and extreme axle articulation. To give some idea of its capabilities, the S could climb a 70-percent grade with 1.5 tons on board. Approach and departure angles are 45 and 46 degrees, respectively, ground clearance is 16 inches, and fording depth (without specialized equipment) is 31 inches. A medium-heavy duty 406 launched in 1963.

There's also the 1994 Funmog, a limited run of 12 units with leather seating and (gasp) carpets. Mercedes-Benz has said it wouldn't look out of place parked in front of a disco. Hmm, maybe if it had just delivered a new lighting system to a nightclub in the Rockies. **TT**

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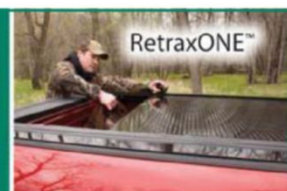


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The Ram 1500 EcoDiesel is the newest and one of the hottest entries in the 1/2-ton market, and now Edge Performance offers its Insight CTS and CS digital monitors to give EcoDiesel drivers information regarding powertrain operation. The Insight offers an abundance of user-configurable parameters that can be displayed in real-time. **Edge Products;** edgeproducts.com



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Chevrolet Silverado/GMC Sierra 2500HD/3500HD 2007-2013

The Silverado and Sierra, both based on the GMT910 platform, are stars among heavy-duty pickups. Admittedly, the Ford and Dodge offerings are also strong performers, but there's no good reason not to look at these when buying a pre-owned ¾ or 1-ton truck.

Since both Chevrolet and GMC brands are virtually identical in terms of engines, options, equipment, and talents, the decision for buying one over the other might just boil down to availability or preference. There could be a sweet Chevy example for sale 50 miles away, but a comparable GMC truck a couple of miles down the road.

The 2500HD versions come with regular, extended, and crew cabs. The extended cab has rear-hinged back doors that open out 170 degrees. Long (8.2 feet) beds are offered with any cab, but extended and crew variants can come with the regular (6.6 feet) bed.

Gasoline-fueled propulsion comes from a 6.0L V-8 developing 353 hp and 373 lb-ft of torque. Output rose to 360 hp and 380 lb-ft in 2010. Also, there's the turbocharged 6.6L V-8 Duramax diesel, good for 365 hp and 660 lb-ft. A new Duramax debuted in 2011, making 397 hp and a considerable 765 lb-ft.

A bi-fuel option for the 6.0L V-8 was available for 2013, offering the choice of gasoline or compressed natural gas (CNG). However, output dips to 301 hp and 333 lb-ft while running on CNG.

All versions come with a six-speed automatic transmission. The diesel truck has a beefed-up Allison unit (the gasoline truck's trans is no wimp, though) and features a manual shift option. Rear-wheel drive is standard and four-wheel drive is optional. The newer diesel engine is paired with an Allison 1000 transmission, a combination claimed

to improve fuel economy and emissions by 11 percent over earlier versions.

The Silverado's trim levels are Work Truck, LT, and LTZ (the latter for extended and Crew Cab only). The entry-level trim is really basic, with manual windows and vinyl seat covering. Air conditioning became standard in regular WT cabs from 2011, although it was always part of the deal in extended and crew versions. Things get fancier with the LT, offering powered accessories and cloth upholstery, while the LTZ goes for leather, heated front seats, and a Bose audio system.

GMC Sierra trims are Work, SLE, and SLT (2007 to 2010). The upscale Denali trim came on stream in 2011, packing items that would be options on

lower trim levels, such as skid plates, EZ-lift tailgate, parking sensors, and chrome trim pieces.

A revision in 2011 also brought a stronger boxed frame construction. This stiffer frame enabled a finer tuning of the toughened-up suspension. Additionally, the diesels were blessed with an exhaust braking feature, which is a boon when towing on downhill stretches.

At some point, there's going to be a decision regarding whether to buy a gasoline or a diesel version, which should be fairly easy. Since these are "heavy-duty" trucks, then they will probably have to work for a living and contribute to the general financial well being of the company. So, if situations requiring high mileage and/or high torque are expected, then it's diesel all the way, but be prepared to pay a substantial premium for the diesel, even on the used market.

The package of capable suspension, upgraded frame, and strong diesel engine is a winner. Also, depreciation from new makes a pre-owned version a bargain. If internet forums are to be believed, then owners of Duramax-powered HD models are a generally happy bunch, glad to get some bearable mileage from their engine and occasionally checking their mirrors to make sure their trailer is still attached because such huge torque results in effortless pulling.

Kelley Blue Book puts a rear-drive 2010 Chevrolet Silverado 2500HD LT regular cab with the 6.0L gasoline V-8, in good condition, at \$18,008. A comparable Ford F-250 Super Duty XLT with a 5.4L V-8 is valued at \$15,971.

A diesel-powered, rear-drive 2010 GMC Sierra 3500HD SLE regular cab in good condition is rated at \$22,130. Compare that with \$24,411 for a similar Dodge Ram 3500 SLT with a 6.7L inline-6 turbo diesel. **TT**

2007-2013 Chevrolet Silverado/ GMC Sierra 2500HD/3500HD

BODY TYPE	Pickup truck
DRIVETRAIN	Front engine, RWD/4WD
AIRBAGS	Driver, front passenger (side-impact and side-curtain optional from 2011)
ENGINES	6.0L/353 hp OHV V-8, 365 hp from 2010; 6.6L/365 hp turbodiesel V-8, 397 hp from 2011
BRAKES, F/R:	Disc/disc, ABS
PRICE RANGE, WHLSL/RETAIL (KBB)	\$6,812/\$8,468 (2007, RWD Chevy Work Truck 6.0 V-8, regular cab), \$42,837/\$45,895 (2013, 4WD GMC Sierra Denali 6.6L V-8)
RECALLS	Too many to list; see motortrend.com
NHTSA FRONTAL IMPACT RATING, DRIVER/FR PASS	Three stars/Three stars

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